

**THE RAILWAY GAZETTE**  
A Journal of Management, Engineering and Operation  
INCORPORATING  
Railway Engineer • TRANSPORT • The Railway News  
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### DIESEL RAILWAY TRACTION SUPPLEMENT

The July issue of THE RAILWAY GAZETTE Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price 1s.

### GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

### POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

### REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE in that the size of the page has been reduced from 9 in. x 12 in. to 8½ in. x 11½ in. The type area of the page remains the same, namely, 7 in. x 10 in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war

### TO CALLERS AND TELEPHONERS

Until further notice our office hours are:

Mondays to Fridays 9.30 a.m. till 5.30 p.m.

The office is closed on Saturdays

### ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

### ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

## The London Passenger Transport Board's First Decade

THE London Passenger Transport Board came into being on July 1, 1933, the Appointed Day in the London Passenger Transport Act which brought under unified control all forms of passenger transport in and around London, an area approximately 40 miles across from east to west, and 60 miles from north to south, and with a resident population little short of 10 million persons. But for the war, no doubt the tenth birthday of the board would have been attended by suitable celebrations. In present circumstances, the event can be marked best by reference to some of the principal developments. Outstanding among railway works have been the extension of the Highgate tube to High Barnet and Mill Hill East, and the Bakerloo connection with the Metropolitan Railway via Finchley Road, which has enabled through services of electric trains to be operated from stations on the Metropolitan Line to the West Central area, as well as to the City. Of the road services, perhaps the chief development has been the changeover from trams to trolleybuses, the growth of the use of which may be seen in the fact that, whereas in the year to June 30, 1934, passengers carried by this means numbered 157,873, by May, 1939, the figure had grown to 3,518,308. The growth of total traffic originating on the board's system, has been from 3,396,000,118 passenger journeys in the first year of the board's life to 3,782,097,853 in that ended June 30, 1939. Detailed statistics have not been available during the war.

## Public and Stockholders

It is inevitable, when considering the results of a ten-year period in the life of an experiment of the kind represented by the London Passenger Transport Board that an attempt should be made to weigh the advantages derived by those who have subscribed capital with those who contribute the revenues. The financial history of the board has not been unchequered. Its prior charges have, of course, been met but the "C" stockholders, who represent the equity in the business, have not had their reasonable expectations fulfilled. On the senior classes of stocks the average return so far has been 4.7 per cent, and on the "C" stock it has been 3.3 per cent. It would be impolitic to enter the controversy which exists as to the balance of advantage arising from the inclusion of the London Passenger Transport Board in the pool of revenues with the main-line companies and it is probable that a further period will have to elapse—certainly peacetime working must be resumed—before a dispassionate survey could be made of this matter. In the field of services provided, the board has had to meet criticism, as have all major transport undertakings, but in this respect at least, it may be said that it has done much to placate, where it cannot meet in full, public opinion. Begotten in socialism, the board has found foster parents of varying political creeds. It has withstood successfully many of the ills associated with youth, and we can but wish it a vigorous adolescence and virile maturity.

## Travel Rationing Plea Revived

From time to time in these columns the suggestion has been made that it may ultimately be necessary to impose a form of rationing by coupon on railway travel. The Ministry of War Transport's attitude is known to be that a large and cumbersome machinery would be required, and that the disadvantages would outweigh any benefits secured. Recently *The Financial News* has raised the desirability and possibility of rationing on the railways. It points out that modern travelling conditions are extremely uncomfortable for able-bodied adults, and for children and infirm persons they occasionally approach the purgatorial. It concludes that the point may not be too far ahead at which safety considerations alone may impose some limit on the growth of traffic. Railway travelling has become a scarce commodity with a controlled price. If demand for it continues to grow, the possibility of securing equitable distribution, by rationing, must be seriously considered. The appeal to take holidays at home is somewhat half-hearted, perhaps because the authorities know the high recreative value of surroundings. There may be a good case for removing the element of reproach from an annual holiday, but if the decision is taken, its implications must be realised.

## A Suggested System

The *Financial News* concedes that the manpower shortage would be the most serious obstacle to a rationing system. On the other hand, the purely administrative problems would be, if anything, less formidable than many of those which the Ministry of Food has successfully overcome. The railways sell a

uniform product—the right to be moved inside a covered carriage. Season ticket holders, Service and official personnel, and possibly short-distance journeys, would be left outside the rationing scheme, and for longer journeys a new form of coupon currency would have to be devised. To the public the new system would be presented, not as a restriction of facilities, but as a guarantee of the means to take one holiday every year. The system of giving first class facilities for a surcharge could be maintained and possibly coupled with arrangements to ensure that facilities, when paid for, were obtainable. Rationing, it is concluded, would secure the distribution of available supplies in the best way. It would be preferable to the alternative, say, of doubling pre-war fares, with all its inflationary implications.

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#### Australian Commonwealth Railways in 1942

The annual report on Commonwealth Railways operations for the financial year ended June 30, 1942, shows unprecedentedly good results. As may be seen from the table reproduced on page 10, earnings exceeded working expenditure on all of the four separate systems owned by the Australian Commonwealth. The preceding financial year, 1941-42, when the total of earnings on all lines exceeded working expenditure by £67,915, was the best previous financial result attained by the Commonwealth Railways, and this was made up of operating surpluses of three of the four lines, but with an operating loss on the Trans-Australian Railway. The magnitude of the transport achievements during 1941-42, and the expenditure of the task which the war is imposing on these formerly lightly-taxed railways, is clearly shown by a comparison of results between the two financial years given in our table. The total excess of earnings over expenditure in the year 1941-42, at £838,505, is an improvement of no less than £770,590 on the figures for the preceding year. The total receipts of £2,195,304 exceeded by 126 per cent. those for the previous year. To earn £100 in 1941-42 cost £61 16s., compared with £93 in the 1940-41 year, and £135 in 1939-40. The report of the Commissioner observes that, in the prevailing circumstances, the securing of such results is not a subject for exultation, but he records the feeling of intense satisfaction that the Commonwealth Railways were in a position to have succeeded in meeting the urgent and vital requirements of the Services.

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#### Mexican Tourist Activities

The enormously improved means of communication between the U.S.A. and the Latin-American countries of the South, coupled with the fact that most of the world is not now available for tourist traffic, have combined to give a great fillip to the American tourist traffic in Mexico. Naturally this trend is welcomed by Mexico in theory, in view of post-war possibilities, but, as one of the United Nations, Mexico is discouraging tourist activities which might be detrimental to the war effort of the U.S.A. The Mexican Tourist Association (a Government organisation) recently urged that all who planned to visit Mexico should make certain that no loss of war-production time or efficiency would be involved. In an open letter to the people of the U.S.A. the agency said: "If your visit to Mexico would in any way injure or impede your country's war effort, Mexico begs you to stay at home. But if you can be spared, or if overwork and health demand rest and change, you are doubly welcome here. Mexico is at one with the United States in the great global struggle to preserve democracy. Our war materials are streaming over the border to be turned by your country into the finished products of war. Our citizens are answering the call of your farms for labour. Our armies are in close collaboration with yours. Please take this into consideration in planning your Mexican vacation; and then, if you feel free to come, you can plunge wholeheartedly into the great variety of vacation pleasures that Mexico has to offer." Meanwhile, in expectation of a post-war rush of tourist traffic to and through Mexico, the Mexican Tourist Association is collating transport and other information from Central American sources, for use as the basis of a campaign to attract tourists when hostilities cease.

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#### Canteens for London Transport Workers

Railway operating and engineering staffs are well provided with canteen facilities in peacetime, but wartime difficulties have intensified the need. Many refreshment places—coffee shops and the like—have been closed, and others are open for shorter periods than normally. Wives of many transport workers are themselves on war work, and the homecomings of husbands and wives often do not coincide. During 1942, the London Passenger Transport Board opened 11 new canteens, and extended and improved many more. A further 10 new canteens will be put into commission shortly, bringing the total to 152.

Four of the 11 are for railway workers; they are at Earls Court and Harrow-on-the-Hill Stations, and at Cockfosters and Northfields car depots. This year, a new canteen at East Ham Station has been completed and is now providing 450 meals a day; and a new canteen has been provided at Morden car depot. All canteens have been provided with emergency field kitchens, and a reserve of mobile equipment is in readiness, so that, despite possible bomb damage, the meal service on which the staff so largely relies will not suffer interruption. An important innovation has been the introduction of a hot meal service for permanent way staff who have, hitherto, found it difficult to reach canteens. Orders for meals are telephoned to the nearest London Transport canteen and, at the right time, the meals arrive by railway in special containers heated by charcoal.

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#### A Spanish Railway Centenary

On June 20, 1843, a petition was presented to the then provisional Government in Madrid for permission to construct a railway from Barcelona to Mataro. The construction of the line was provisionally authorised on August 23 of the same year, although the corresponding Royal Order, with its schedule of conditions, tariffs, etc., was not approved until October 20, 1847. This Barcelona—Mataro line, 28 km. (17 miles) long, was the first railway to be constructed and opened in Spain. It was built by private enterprise and half the original capital was contributed by English interests. The company was formed and incorporated in Barcelona by José M. Roca, a Spaniard resident in London, and Manuel Gibert, of Barcelona; the latter was appointed General Manager and, later, Managing Director & Chairman. Joseph and William Locke were the first engineers and the contractors were Mackenzie and Brassey. The original issue of shares was not all taken up and probably the completion of construction was paid for out of receipts. However this may be, the line was opened to working, with great and appropriate ceremony, on October 28, 1848. The railway carried nearly 700,000 passengers in the first year of working and the company paid a dividend of 22 per cent.

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#### The Public Transport Association

In connection with the now-completed merger of the Public Service Transport Association and the Omnibus Owners' Association, it is interesting to recall the close connection which the British Electric Traction Group has had with both these associations since their earliest days. Looking through the Memorandum of Association, one finds that, of the fourteen subscribers of the old Tramways & Light Railways Association (the original title of the P.S.T.A.) five, namely, Sir Charles Rivers Wilson, and Messrs. Emile Garcke, Stephen Sellon, J. B. Braithwaite, and W. M. Murphy, were all B.E.T. associates. Sir Charles Rivers Wilson was the B.E.T. Chairman; Mr. Emile Garcke, its Managing Director, and Mr. Sellon its Chief Engineer; while Messrs. Braithwaite and Murphy were Directors of associated companies. Similarly, Mr. R. J. Howley, the present Chairman of the B.E.T., and Mr. A. D. Mackenzie, a Director of the B.E.T. associate, Southdown Motor Services Limited, were subscribers of the old London & Provincial Omnibus Owners' Association—the former title of the O.O.A. Going back still further to the days of the London Omnibus Owners' Federation and the Provincial Omnibus Owners' Association (the two bodies which merged to form the "London & Provincial"), the name of the Amalgamated Motor Bus Co. Ltd. (a B.E.T. subsidiary) is found in the list of London Federation members, and the name of Mr. Sidney Garcke, who played a leading part in the formation of the old "Provincial" association, appears amongst the subscribers of the latter body. The close B.E.T. link with the O.O.A. has been maintained during the whole of the association's life. The development of the O.O.A. formed the subject of an article (we believe the only comprehensive one published) in our issue of October 23 last, page 392.

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#### Accident after a "Lap" Order

Details have now been published of the head-on collision which occurred on December 11, 1942, at Tebbetts, on the Missouri-Kansas-Texas Railway. The single-line section concerned, over which some 20 trains were being operated daily, was not fitted with any signalling; train movements were controlled by train dispatcher's orders under the standard code of timetable rules. The accident was due to the dispatcher issuing what is technically known as a "lap" order, that is, an order the instructions in which overlap the effect of some other order or regular rule on which a train is duly justified in proceeding, leading to another train starting against it on the single line. Unless the error is detected in time an accident is practically inevitable. The expression "cornfield meet" is popularly



applied to these cases. In the accident in question the dispatcher directed a part of a train running in several portions to wait for another, but accidentally mentioned the second instead of the third portion. The weaknesses of the dispatching system are fully appreciated in America and the authorities, as recently recorded in these columns, are asking for adequate signalling to be extended.

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### American Wagon Improvements

At a recent meeting of the Railway Club of Chicago, an interesting review was given by Mr. J. D. Rezner, Superintendent of the Car Department, Chicago, Burlington & Quincy Railroad, of improvements that have taken place in wagon construction in the United States during the past 25 years. The first step was to substitute steel for wood centre sills, with steel attachments for the draught gear, on all wagons with wood underframes; later, the steel sills were provided with cover-plates. Brake-beams, previously suspended from the bodies of the wagons, were hung instead from the bogies, and a frequent cause of derailment was thereby eliminated; in succession H-type air-brake valves were replaced by K-type and then by the modern AB-type brakes. In this connection it should be remembered that American wagon stock is exclusively of bogie types and is all continuously braked. Wood box-wagon ends were replaced by steel ends, with other reinforcing improvements. To keep pace with the increase in loads and speeds, coupler shank dimensions have been increased from 5 in. x 5 in. to 6½ in. x 8 in. Cast-steel bogie sides have largely replaced the previous built-up type, and lightweight alloy- and high-tensile steels have been used to a considerable extent in new wagon construction, reducing the tare weight of wagon stock in proportion to its paying load. Many box wagons have been equipped with passenger coach bogies, passenger brake equipment, steel wheels, and steam-heat connections, to permit marshalling in passenger trains when necessary. As compared with 1917, the number of Burlington wagons with steel underframe construction has gone up from 6,174 to 27,618, and the average carrying capacity of the entire wagon stock from 41.5 to 44.1 tons a wagon.

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### Semi-Streamline Australian Locomotive

Streamlining has been on trial long enough for locomotive engineers to have a fairly accurate idea of its value in service. Their considered opinion seems to be that except for engines intended to maintain speeds in excess of 80 m.p.h. over lengthy runs the advantages of streamlining are slight. It follows from this that engines incapable of prolonged high-speed running cannot justifiably be fully streamlined. Conversely, streamline engines need to be capable of standard high speeds if they are to show a return for the quite considerable first cost of the streamlining. Most two-cylinder engines built for handling heavy trains are strictly limited as to their highest running speed because any attempt to balance their relatively massive reciprocating parts leads to prohibitive hammer-blow effects. Three- and four-cylinder arrangements are needed to give the requisite power without transgressing the limit allowed for the dynamic augment—a limit which becomes less as the static axle load is increased to meet the demand for still more adhesion. The semi-streamline Australian locomotive described on p. 646 of our last week's issue, has been built with only two cylinders and relatively small driving wheels; further, the static axle load is over 22 tons; the design is judged therefore, notwithstanding appearances, to be one for moderate rather than high speeds.

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### A Loudspeaker Legend

We met a man the other day who boasted that he had been spoken to by a railway station announcer. We do not mean that he had been rebuked collectively with other over-eager passengers for standing too near the platform edge as his train approached; nor had he been upbraided in company with the lingering and amorous who protract their farewell handclaps with the guard's whistle shrilling in their ears. It seems that on this occasion the flow of information from the loudspeaker failed to clear up a certain point about his journey over which he was in doubt, and that in this plight he must have fallen to voicing his misgivings aloud, like the principal boy in a pantomime. And just as in a pantomime the good fairy then appears and taps the principal boy on the shoulder with her wand preparatory to offering advice and comfort, so now the lady of the loudspeaker materialised from her hiding place to supply the information desired. Our friend had barely time to stammer his thanks before she was gone, and had resumed her impersonal chanting. Thinking aloud has never yielded such results to ourselves, but perhaps the legend will buoy the spirits of some who stand and wait with the hope of a similar manifestation.

### San Paulo (Brazilian) Railway Co. Ltd.

THE report for the year 1942 is very much curtailed and omits most of the operating figures given in previous years. By decree dated October 6, 1942, the unit of currency in Brazil has been from November 1, 1942, the cruzeiro and the currency in the accounts is so stated together with comparative figures of 1941. The exchange value of the cruzeiro is equivalent to that of the milreis, and the average rate for remittances during 1942 was 3-01424d. On the Santos-Jundiaby main line of 86½ miles on the 5 ft. 3 in. gauge the traffic receipts amounted to £1,914,002, an increase of £16,905, and the receipts in currency were higher by 0.57 per cent. in comparison with 1941. Working expenses on the main line advanced from £1,417,803 to £1,623,175, and the operating ratio was 84.81 per cent., against 74.73 per cent. in 1941. On the Bragantina section of 67 miles (metre gauge) there was a loss on working of £15,876, compared with £8,952 in 1941. Working expenses of the entire system have been heavily increased, due to the enhanced cost of fuel and materials and higher wages to meet the increased cost of living. To meet this situation the petition by the company for increased rates has been granted. The general financial position is indicated in the accompanying table:—

	1941 £	1942 £
Gross receipts ... ..	1,928,909	1,955,605
Expenditure ... ..	1,576,653	1,800,108
Net receipts ... ..	352,256	155,497
Other income ... ..	30,370	320,987
Total income ... ..	382,626	476,484
Debt interest and other payments ... ..	310,700	388,621
Dividends ... ..	110,000	110,000
Brought forward ... ..	107,795	69,721
Carried forward ... ..	69,721	47,584

"Other income" in 1942 includes £285,000 transfer from general reserve. Among "other payments" are £225,000 to Brazilian taxation reserve and £40,068 to the associated road company under agreement. The net transfer of £60,000 from reserves enables the dividend of 2 per cent. tax free on the ordinary stock to be maintained. The transfer to Brazilian taxation reserve has been made in view of recent adverse decisions by the Federal Supreme Court, which appear to be influenced by the terms of the new Brazilian Constitution of November 10, 1937. In the past the company has by the Courts under its contract of April 26, 1856, been considered as exempt from Federal Government income tax in respect of tax on debenture interest paid in the United Kingdom, and income tax on remittances for servicing of dividends, from an industries and professions tax to the Government of the State of San Paulo, and from various state and municipal taxes. In order to contest these cases in the Courts, payments under protest have been made in some cases or a lien given on part of the property of the railway company.

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### Senior Railway Staff Pay Decision

WE learn with somewhat mixed feelings that sanction has been given at long last for the payment of the full war advance to railway salaried staff in receipt of salaries between £500 and £1,000 a year. Thus a definite injustice has now been partly rectified, but as we understand that the decision will have retrospective effect only as from April 26, 1943, whereas the original claim was made in 1940 and has been constantly pressed ever since, it would not be unfair to characterise the decision as scarcely justice.

We realise that the railway companies are not their own masters in this matter and we cannot help contrasting this treatment with that repeatedly accorded the railway trade unions when pressing claims of this description. No useful purpose will be served by labouring this point, but the implications are obvious. In any case we adhere to our view that the only fair way of treating railway staff would be to follow the practice which obtained in the last war and pay the war advance to all staff irrespective of salary. After all, the incidence of income tax has been adjusted by the Chancellor of the Exchequer to take care of relative incomes and we find it extremely difficult to find any justification for singling out any section of railway staff for a further means test which is not employed in industry generally.

Two other relevant matters still remain to be determined arising out of this decision, namely, payment for holidays not taken and for overtime. Staff receiving under £500 are paid for holidays which the exigencies of war prevent them taking, but hitherto similar payments have not been made to staff in

the £500-£1,000 range. The National Agreements provide for special class male staff having 18 week days annual holidays and make no distinction between staff receiving under or over £500 a year. There is thus a prima facie case for paying all special class staff for holidays which they are precluded from taking by reason of war conditions although we appreciate that other considerations arise in this connection.

Certain complications also arise in connection with any proposal to pay overtime to staff receiving over £500 a year, but consideration might reasonably be given to adopting the principle in respect of the higher range of salaried staff where overtime is worked regularly as, for example, where the office hours have been extended, as a wartime expedient. The question of irregular overtime, however, raises a somewhat different issue. These two points are presumably matters within the discretion of the companies as they involve questions of the interpretation of the terms and conditions of employment and we have no doubt that decisions will be given very shortly.

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### L.M.S.R. "Carry On"

THE June issue of *Carry On*, the L.M.S.R. wartime news letter which is published for circulation to the staff, contains an unusually varied and excellent selection of contributions. Since it succeeded three publications—the *L.M.S. Magazine*, *Quota News*, and *On Time*—it has frequently contained outstanding pronouncements by chief officers and others, but the present issue seems to us to be far and away the best that has yet been produced. It is therefore all the more satisfactory to note that in future *Carry On* is to be published monthly instead of every two months as hitherto.

The front page article on this occasion is written by Mr. T. W. Royle, Chief Operating Manager, and is appropriately headed "Thank you, Operating Staff." He gives an eloquent summary of the Herculean task which the L.M.S.R. is performing and although statistics cannot give the full picture, he presents some which indicate the immensity of the job which is being tackled. For the year 1942, the loaded wagon miles run, which is the measure of freight work done, totalled 1,713 millions, an increase of 82½ millions or 5 per cent. over 1941, and taking a pre-war year (1938) the increase is 435½ millions or 34 per cent.

Since the war the average load per wagon has been increased. In 1938 it was 6.5 tons; today the average load is 7.2 tons. The average number of loaded wagons per train too shows an increase; today the average per train stands at 26.2 loaded wagons, whereas in 1938 it was 22.3 wagons. The volume of additional traffic conveyed can be more fully appreciated when it is realised that approximately 390,000 wagons are used each week to move traffic originating on the L.M.S.R. Engines of the L.M.S.R. working freight trains are being called on for great additional mileages. The 121,097,847 miles which they covered in 1942 represent an increase of 3,641,995 miles, or 3.1 per cent. over the year 1941, and an increase of 18,883,640 miles or 18.5 per cent. over 1938.

The story is no less impressive on the passenger side. Despite the vigorous campaign to limit unnecessary journeys, passenger carryings show an ever upward trend. Certainly the majority of the journeys may be classed among those that are "really necessary," but that does not alter the fact that the railway has to carry the passengers. The figures of originating passenger journeys on the L.M.S.R. for the year 1942 reveal an increase of nearly 55 million journeys over 1941, and of nearly 8 million over the pre-war year 1938.

In future *Carry On* is to contain a special feature devoted to the work of the Operating Department and in the current issue a number of interesting statistics is given. Thus the number of L.M.S.R. passenger stations is 619, the number of halts 144, combined passenger and goods stations total 1,570, and the number dealing with passengers is 2,333. In addition there are 127 stations closed to passengers which still deal with parcels and miscellaneous traffic. The L.M.S.R. steam locomotive stock is given as 7,564 units and in addition there are 41 diesel engines. The staff of the L.M.S.R. operating department now exceeds 129,000 of which 46,626 men and women are motive power staff. Steam coaching train mileage up to May 1, 1943, was 22,481,429 and freight train mileage was 22,666,953, which was 3 per cent. higher than in the same period last year.

Sir William Wood, the President, has contributed a message dealing with the L.M.S.R. Prisoners' Comforts Fund in which he states that he reads each letter received from prisoners and he assures all their colleagues on the L.M.S.R. that they are bearing their discomforts with the national sense of humour and are exceedingly grateful for the interest shown in them and the assistance given to them from the Comforts Fund. A list of

178 prisoners of war is given, which is in addition to the names of 187 given in a previous issue of *Carry On*.

The usefulness of the publication in maintaining and increasing the interest of the great and necessarily scattered L.M.S.R. staff is valuable in these days and there can be no doubt that it serves a national purpose in maintaining the morale of so vital a section of workers in the war effort. It is able to encourage economies in such matters as fuel consumption, for instance, by enabling various sections of the line to know what others are doing in this direction.

It is noted in the current issue that in a recent four-weekly period, coal consumption throughout the line was 67 lb. per engine mile, which compares with 67.3 lb. per engine mile in the same period last year. So far this year, coal consumption per engine mile has been 68.1 lb. as against 69.4 lb. last year. Oil consumption per 100 engine miles in a recent four-weekly period was 5.9 pints, which compares with 6.1 pints in a similar period a year ago. The publication forms an excellent example of one aspect of what is becoming known as "industrial publicity." This has been defined as including every psychological approach to the worker, which will impel him in the direction of giving his maximum productive effort, or less academically, everything which makes a man enthusiastic about his job.

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### Railway Nationalisation in Belgium

MOST of the main lines in Belgium were the property of the State for many years before the war, and their operation had been entrusted to the Belgian National Railways Company, which was formed in 1926 to take over the working of the State lines on a 75-year lease under a directorate appointed by Parliament. There were still three companies, however, owning sections of main line, namely, the Nord-Belge Railway, the Chimay Railway, and the Malines-Terneuzen Railway. Immediately after the invasion of Belgium in May, 1940, all these lines were requisitioned by the Government and operated by the National Railways Company under military control. The German occupation authorities continued this arrangement under their own supervision and *Wehrmacht* control. A year later, substantial portions of the State concessions granted to these companies expired, and it is now known that, in accordance with the terms of the concessions, the Belgian State took over the private lines and their fixed equipment, entrusting the operation to the National Railways Company, which has taken over the movable equipment and the stores, including the rolling stock. Payment for these items will be made at the end of the war, and machinery has been set up to determine the price. The entire staffs, totalling just over 4,000, have been taken over, and also the superannuation fund and liabilities, together with all other financial assets and liabilities.

The Nord-Belge Railway was the most important of the three. An illustrated description of this railway and its relations with other systems was given in articles by the late Professor Lionel Wiener published in the issues of *The Railway Gazette* for January 26 and February 2, 1940. It had its head offices at Liège, Longdoz Station, owned the main lines Liège—Namur, Namur—Givet—French frontier, and Charleroi—Erquennes—French frontier, and exercised running powers over the Namur—Charleroi line of the Belgian National Railways. These lines were leased to a French company, the Chemin de fer du Nord, which, after the amalgamation of the French main-line companies into the French National Railways Company, retained its separate existence for working the Belgian lines and for administering its French finances. It also owned the Mons—Quevy section of the Brussels—Paris main route, which section was operated for the company by the Belgian National Railways. The total length of the Nord-Belge was 170 km. (106 miles). The concession of the leased lines ended on May 1, 1941, and the concession of the Mons—Quevy line was to have ended in 1948. The importance of the Nord-Belge system lies in the part it plays in the main route from France through Belgium to Germany, one of the trunk routes of Europe. The Chimay Railway Company with head offices at Chimay, owned and operated a single-track main line, 59 km. (37 miles) long, from Hastières Junction (on the Nord-Belge Givet line) to the French frontier towards Anor; its concession also ended in May, 1941. The company was closely associated with the Nord-Belge by means of a curious operating arrangement, details of which were given at page 117 of our issue of January 26, 1940.

The Malines-Terneuzen Railway has been treated slightly differently, as Dutch concession terms are involved. The section Malines—Tamesse has been taken over completely by the Belgian State. At Tamesse the line crossed the Scheldt, but the railway bridge, which was destroyed during the hostilities in 1940, has never been rebuilt. The section north of the Scheldt, partly



in Belgian and partly in Dutch territory, remains, for the present, the property of the Malines-Terneuzen Company. It was already operated by the Belgian National Railways Company. The 1939 rolling stock of the transferred companies consisted of the following:—

Nord-Beige ...	156	locomotives,	369	carriages and vans,	5,998	wagons
Chimay ...	14	"	14	"	196	"
Malines-Terneuzen	26	"	68	"	1,429	"

Presumably the post-war terms of payment will be controlled by a new Belgian Government after the liberation of the country, but it is most unlikely that the lines will be restored to private operation, as the pre-war Belgian authorities had decided not to extend the concessions.

### Foaming in Locomotive Boilers

EXPERIENCE proves how often the evolution of a successful method of dealing with one problem in locomotive working and maintenance may itself give rise to an entirely fresh problem or set of problems for solution; this has been the history of locomotive water-softening. It was on the Denver & Rio Grande Western Railroad at Helper, Utah, in 1900, that the first serious attempt was made by a railway chemically to treat hard locomotive feed-water in order to reduce boiler incrustations; today the American railway water-softening plants total over 1,300, and remove some 53,500 tons a year of scale-forming solids from feed-water, with a total yearly saving in locomotive maintenance conservatively estimated at \$12,000,000. In this country the Great Western Railway, in 1904, took the lead in the same direction with its Kennicott plant at Aldermaston, Berks, for softening the supply to the water-troughs at that place, and though a quarter of a century and more was needed subsequently for the value and necessity for treatment of unsuitable locomotive water to be realised, in the decade before the present war the matter was at last tackled in Great Britain with a thoroughness which is common knowledge. The chemicals added to the water, although beneficial in counteracting sulphate hardness, left sodium sulphate dissolved in the water, and this to a degree until then unprecedented caused the water in the boilers to foam. In the large American locomotive boilers, foaming with treated water took place to a height as much as 24 in. above the water level indicated in the gauge glass, and caused serious priming. At first it was thought, though incorrectly, that some kind of syphonic action was taking place at the regulator, an impression supported by the fact that a partial closing of the regulator was often found to reduce the trouble. Otherwise the only remedy was the use of blow-off cocks in the water-legs of the firebox, and for a time American locomotivemen on certain lines were instructed to blow down their boilers at regularly specified intervals, in order to keep the concentration of foam-producing solids at well below the foaming point if possible. This practice met with objection from the permanent way engineers, due to damage sustained by the track from these frequent and sometimes violent blow-down operations. Also, although the blow-off cocks permitted the removal of sludge from the water-legs of the firebox, they did not deal with the accumulation of unwanted foreign matter on the surface of the water in the boiler. Eventually anti-foaming ingredients, which were successful in controlling foaming up to a point, were introduced into the feed-water, and enginemen were left to use their discretion as to when blowing-down was necessary.

It was still difficult to know for certain, on the footplate, when foaming was about to occur, apart from the appearance of excessive moisture at the chimney, and since the introduction of high-temperature superheat even this indication is rarely given. The next stage, therefore, has been to devise an indication to enginemen, working from inside the boiler, to show when foaming has begun and automatically to operate the blow-down. Exhaustive tests had convinced American locomotive engineers that foaming did not take place merely round the entrance to the steam-pipe, but that it was general along the length of the boiler, and these tests have furnished the basis of the evolution of the signal foam meter. A length of insulated rod is suspended as an electrode from the top of the boiler shell to a point 7 in. above the normal water level. As soon as the foam rises to this height, it contacts the rod, and completing a circuit from the headlight generator it causes a yellow lamp to flash in the cab; at the same time, by electro-pneumatic power, the blow-off valves are opened. The latter remain in operation until the supply of additional feed-water to the boiler causes the foam to collapse and breaks the circuit. From the blow-down the water is carried to a separator chamber, from which it is discharged without force well to the side of the track; and the enginemen have an "off" switch to put the blow-down out of action when passing stations. If the foam still continues to rise, a

second electrode, higher in the boiler than the first, is reached, and causes a red light to show in the cab, as a signal to the driver to operate manual blow-down cocks, or partially to close the regulator, or both, until the trouble is at an end. A further refinement is the electromatic foam-collapsing system now under trial on the Canadian National and other railways. This includes a shallow trough located under the steam-dome, into which, if much foaming takes place, or an excessively high level of water is reached in the boiler, the surplus bubbles and water pass, and are blown off through a large valve on the top of the boiler. This device has proved so prompt and efficient in action that, as has been shown by tests, in locomotives so fitted no water is carried down from the boiler to the cylinders, whatever the operating conditions may be. All these elaborate devices would be unnecessary if some inexpensive compound could be discovered, for admixture with the softened feed-water, that would make foaming impossible.

### Will the Railways get Gratitude?

THE success which has attended publication of the illustrated book "Facts about British Railways in Wartime," which was reviewed at some length in our issue of June 4, must have been gratifying to the railway companies and especially to the Publicity Committee of the Railway Executive Committee, which was responsible for its production. That there would be a large public demand for an authenticated, well presented, and profusely illustrated record of the outstanding services which the railways have rendered, and continue to render, the nation during a war which has depended for its successful prosecution in greater measure on efficient transport than any other, need occasion no surprise. As never before, transport impinges directly on the life of the citizen, and it is but natural that he should wish to have some record, not only of the part that the major transport system of the country is playing in a struggle in which all are engaged, but also from which he might the better be able to judge the contribution which he rightly feels he has himself made to the war effort by sacrificing travel and transport facilities which until the outbreak of war he had become accustomed to consider as his by right. There is no doubt that the R.E.C. Publicity Committee has made a useful and valuable contribution in the compilation of the book, and because it is a first effort, no doubt future editions will be even better, but publicity of this kind raises wider implications than may be apparent at first sight.

From time to time there have been laudatory references in the House of Commons to the work performed by the railways. The advertising programmes of the railways have been divided almost equally between admonishing the traveller to abstain, and instructing the trader how to enable the railways to make the best use of their wagon supplies, and on the other hand, recording some of the outstanding achievements of the lines. The admonitions have been necessary, and the reminders of national service rendered have been justified, in the exigencies of the times, but the danger must not be overlooked of a somewhat disgruntled public levelling the accusation of smugness.

It would be a great mistake, however, to assume that when peace returns, the railways will receive any gratitude from the public for what they have done during the time of national crisis either from travellers or from traders. It is far more likely that the trader will remember the aspects of railway operation which have impinged most directly upon his own interests; the restrictions on packing, the delays in transit of his goods, the lower priority he has been forced to accept in comparison with war traffics, the steps taken to incite him to unload wagons quickly, and similar trials associated with the war, and for want of a better scape-goat he will remember them against the railways. The traveller, too, will recall not the splendid efforts made by the lines in transporting Forces personnel and military stores, but reduced passenger services, which have caused him inconvenience, crowded business trains which have added to his morning and evening discomfort, long journeys without the solace of a dining car, or long nights spent in a train minus sleeping cars. In this frame of mind it would occasion little surprise if the public generally lends its ear to the irresponsible clamour of politicians for State ownership, principally on the basis of securing a change in control, without any deep consideration as to whether change necessarily implies improvement. Wartime publicity is necessarily of an especial kind, and the railways no doubt appreciate this, but if in the words of Andrew Marvell, "They neither build the temple in their days, nor matter for succeeding founders raise," they may find the need in the post-war years for an altogether more forceful and progressive campaign.

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

## Railway Criticism

50, Pall Mall,  
London. June 23

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Referring to your editorial remarks in your issue of June 11, although there are a few lines where electrification is less advantageous, what really matters is that railway electrification, taken as a whole, has the following advantages: (i) It effects great economies in running expenses, (ii) the annual coal saved would be considerable, and (iii) the coal could be processed, thus increasing the value of the economies effected.

With steam traction the burning of raw coal destroys many valuable derivatives. Electrification gives cleaner and speedier service, while total economies would provide much more interest to shareholders.

I actually proposed a partial electrification of the railways, and the use of diesel railcars instead of steam trains on numerous branch lines of less intense traffic, thus reducing the capital expenditure. As to the alleged danger due to possible enemy action, it is sufficient to say that the electrified Southern Railway has maintained regular services throughout the heaviest bombing of the war.

Lastly, if the railway companies unite, they could carry out these improvements more easily, and by giving better services to the public they might avert being nationalised.

Yours truly,

W. WAKEFIELD ADAM, M.I.MECH.E.

## The Journey of a Trunk

Palestine Railways,  
General Manager's Office,  
Haifa. February 6

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The following example of the honesty of many people and the final delivery of a wardrobe trunk in most improbable circumstances may interest you. On July 28, 1942, these railways received a claim with respect to a wardrobe trunk which had been forwarded from Jerusalem to Tel Aviv on June 30, but which had not been delivered. As exhaustive investigations failed to reveal the whereabouts of the trunk, it was assumed that it had been stolen, and the claim was passed for payment, but on October 25 the Superintendent of the Line received the following laconic communication from the claimant:—

"I have much pleasure in informing you that my trunk was apparently sent to New Zealand by mistake, and has now been returned to me. I found nothing missing from the trunk."

It appears that the trunk had been assumed to be part of the kit of some wounded military personnel and found its way to New Zealand via Kantara and a hospital ship. The ownership was established by a letter found inside the trunk and it was then returned to Cairo. The trunk was received in good condition with the contents untouched and the claimant's possessions intact. There was no means of identifying the trunk outwardly apart from the small railway label with the Arabic transit number written on it.

Yours faithfully,

A. F. KIRBY,  
General Manager

## Locomotive Exchanges

Tunbridge Wells. June 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Both your correspondent "Amateur" and your footnote reply in *The Railway Gazette* of June 18 appear to be a little too sweeping in their statements. Both overlook the results of the exchange between the L.N.W.R. Precursor 4-4-0 tender engine and the L.B. & S.C.R. "I3" class 4-4-2 superheated tank engine on the Sunny South Special between Brighton and Rugby. This exchange was almost entirely responsible for the conversion forthwith of the L.N.W.R. to a policy of superheating, a sweeping change. The difficulty you mention in convincing "one C.M.E. of the value of another's practice" was certainly overcome by the outstanding performance of Marsh's engine. It worked (on alternate days with the Precursor) the Sunny South, weighing with complement about 240 tons, from Brighton to Rugby and back without refuelling, a round trip of 264 miles.

By careful packing, its 3-ton bunker was made to carry 3.25 tons, but even so the average consumption was only 27.6 lb. a mile. Water was taken at Croydon, the 2,100 gal. tank capacity sufficing for the 90½-mile run thence to Rugby, the consumption working out at 22.2 gal. a mile. These remarkably economical figures together with the ease with which this tank engine was able to work the

train 90 miles without taking water, including a non-stop run from Willesden to Rugby at 53½ m.p.h., were at once the wonder and admiration of the L.N.W.R. mechanical staff, and opened their eyes to the value of superheating. The "I3" in question and many of her sisters are frequently to be seen on Tunbridge Wells (West)-London and Three Bridges trains nowadays.

Yours, etc.,

F. S. B.

## Railway Track Construction and Train Operation

June 11

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—With reference to the article on page 15 on "Railway Track Construction and Train Operation" by Mr. Thompson Fairless, I have to submit the following remarks:—

(1) The curve resistances are based on a resistance of 5 lb./ton for a 300 m. radius and inversely proportionate with larger curves; this does not take into consideration that this resistance depends on not only the radius, but also (a) gauge, (b) rigid wheelbase length, and (c) condition of rails and tyres. The latest information concerning curve resistance has been grouped in the formula  $W_c = f (0.72 g + 0.47l)/R$  and expressed in a nomogram in Mr. Quartermaine's paper read before the Railway Engineering Division of the Institution of Civil Engineers on February 28 and reported in *The Railway Gazette* of February 26 last.

(2) The term "curve moment" is somewhat misleading. As the figures in that column represent the energy spent to travel round the curve, perhaps a term "integral curve resistance" would be more descriptive.

(3) The table given in lb./ton for the rolling resistances of goods-trains, allowance being made for wind, does not take into consideration the very extensive research work carried out in France and Germany which developed the following formula:

$$W_r = 2.6 + \frac{V^2}{2,220} \text{ for loaded goods trains.}$$

$$W_r = 2.6 + \frac{V^2}{607} \text{ for empty goods trains.}$$

$$W_r = 1.5 + \frac{V^2}{2,860} \text{ for stock on bogies and good conditions.}$$

$$W_r = 2.0 + \frac{V^2}{2,630} \text{ for stock on bogies and average conditions.}$$

$$W_r = 2.6 + \frac{V^2}{2,500} \text{ for stock on bogies and bad conditions.}$$

$$W_r = 1.5 + \frac{V^2}{2,080} \text{ for rigid passenger stock and good conditions.}$$

$$W_r = 2.0 + \frac{V^2}{1,920} \text{ for rigid passenger stock and average conditions.}$$

$$W_r = 2.6 + \frac{V^2}{1,665} \text{ for rigid passenger stock and bad conditions.}$$

where  $W_r$  the rolling resistance is Kg/t., and  $V$  the speed is Km./h. (4) The rolling resistance for locomotive and tender is taken in lb./t. as the same with that for goods vehicles. The formula for these are:—

$$w_{l+t} = 2.5 W_{l+t} + c W_c + 0.6 A \left( \frac{V+12}{10} \right)^2$$

where

$W_{l+t}$  = Kg/t. rolling resistance of the locomotive and tender.

$W_{l+t}$  = weight in t. of the locomotive on the non-coupled wheels and weight of tender.

$W_c$  = weight in t. of the coupled wheels of the locomotive.

$A$  = the net cross-sectional area of the locomotive exposed to the wind resistance (usually 10 m<sup>2</sup> for 4/8½ locomotives of average construction).

$V$  = the speed in Km/h.

and  $C$  = 5.8 for two coupled wheels and 2 cylinders.

5.9 " " " " 3 " "

6.0 " " " " 4 " "

7.3 " three " " 2 " "

7.4 " " " " 3 " "

7.5 " " " " 4 " "

8.4 " four " " 2 " "

8.5 " " " " 3 " "

8.6 " " " " 4 " "

etc.

(5) The computation of the speed (38½ Km/m) attained on the gradient 1 in 212 is somewhat misleading; thus, the factor 18.8 through which the tractive effort is found by multiplication with the gross-load is the total resistance (grade + curve + rolling) which is as yet unknown. The process involved, therefore, appears



to be one of trial and error between the speed, the total resistance and the tractive effort.

(6) For the "inward" direction gross loads have been accepted which are different from those for the "outward" direction. It is not understood (1) why this should be so; (2) why a gradient of 1 in 75 was selected for the "outward" direction as governing the gross loads.

(7) It is felt that the general trend of "averaging" to such a degree may lead to ill-judged conclusions.

Computations of this class can be conducted much more accurately in the following manner:—

For a given type of locomotive (it would be necessary to have:

the steam producing area of the fire box.

"tubes.

the area of the grill of the firebox.

the loads on the trailing axles,

and the loads on the coupled axles,

besides the number of cylinders and type of expansion—simple or compound, and the other data given in the article)

the maximum available total tractive force can be found as a function of the speed:

$T_l = f(V)$ . The available tractive force at the hook of the tender will then be

$T_h = f(V) = f_l(V)$ , where  $f_l(V)$  will be the rolling resistance for the various speeds and the resistances because of gradients and curves for these speeds of the locomotive and tender.

If now the equation which is found from the first differentiation of the above function is equalled to 0 and solved, it will give the most economical speed, for which the locomotive will have the highest economical tractive force developed and available at the hook of the tender. A time table then could be worked out and the operating factor calculated, after the computation of the tonnage which could be pulled at that most economical speed.

Yours faithfully,

P. PROTOPAPADAKIS

## Stationmasters, Top Hats, and Vanishing Glory

51, Goldsmith Avenue,  
Acton, W.3. June 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your references in the issues of both May 14 and 21 remind me of an interesting story which will prove the glory of top hats more than fifty years ago, when fierce competition existed even to secure London local traffic, and horse-drawn buses were the only opposition to train services.

For many years the old North London Railway to Broad Street had a wide area without competition, until the advent of the Midland Railway to St. Pancras, etc. Several weeks before the completion of the Midland line, canvassers were sent out to waylay season-ticket holders approaching North London Railway stations, with an offer that if they would transfer their patronage, the Midland would be prepared to open up a new route to the City with a through service of trains from St. Albans to Farringdon Street, Aldersgate, and Moorgate, and if they would sign a contract for a season ticket, one year, they would provide a free pass for the first six months.

This was an irresistible attraction from the crowded North London trains and many patrons were secured, among them being my esteemed father-in-law, Mr. Nicholas J. Moody, the eminent solicitor, who in appearance was the genial personification of John Bull, and delighted in relating the facts to his wide circle of friends.

He travelled with about forty others on the first train from Fenchley Road to Moorgate, which, due to the zeal of the driver to keep time, and a wet rail, managed to crash into the stop blocks at Moorgate. Thus terminated the first journey.

Immediately the Stationmaster stepped forward with a tactful apology, and invited all the sufferers to come to his office, where he immediately with more apologies wrote out a chit for a new two guinea silk hat for all, which was accepted as a souvenir of the occasion, and a City firm did good business as a consequence, and thus the fame of the new route to the City secured a substantial advertisement, which produced many more patrons, and even now, fifty years later, it is hard to realise that it is now extinct, and the old North London is still the only railway route from North West London to the City.

Could you imagine the Stationmaster at either Euston, Kings Cross, or Paddington, in these days, having the tact and authority to jump to the position, and square the deal, with such ready promptitude to immunise their respective companies from further liability in such circumstances, and quickly appease more or less injured feelings.

Yours faithfully,

J. V. A. KELLY

## Locomotive Lineaments

Edinburgh. June 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have just come across a passage by a well-known writer on aesthetics, the late Professor R. G. Collingwood of Oxford, which is in remarkable agreement with Mr. H. Maxwell's letter in your issue of November 13 last. It is on pp. 225-6 of "The Mind," ed. R. J. S. McDowall (Longmans Green 1927):—

"Everything may be treated as a work of fine art by the simple process of ignoring its references to anything outside itself. Take a machine and ignore the question of what it is for: confine yourself to regarding it as a skilfully-designed whole of parts; and the machine there and then becomes a work of fine art, and appeals to you as beautiful, or, if it seems a clumsy and lopsided whole in which the elements work against one another instead of with one another, as ugly. A misunderstanding may arise here. I may be told that a locomotive or ship appears beautiful in its efficient and triumphant performance of its function; that if you forget 'what it is for,' you lose its beauty. I agree that visible speed and power are factors in the beauty of a locomotive; but I deny that they are 'what it is for.' Its function is to pull a certain weight under certain conditions at a certain pace; that is, to recognise its function means recognising and formulating a considerable number of technical engineering problems. Its beauty can be appreciated by a person who does not know, or is at the moment ignoring, the engineering problems whose solution alone enables it to discharge its function, i.e. to compete successfully with other locomotives." It would be interesting if Mr. Maxwell or any other reader could cite any more such passages.

May I add a word on another matter? The dispute over locomotive nameplates and scrap metal can easily be solved by adopting the old Stroudley and Scottish plan of painting the names on, which has three virtues: legibility, cheapness, and making the name appear as a more integral part of the locomotive's "personality," not a mere detachable addendum, appendix, or "extra."

Yours faithfully,

AMATEUR

## The Baker Valve Gear

Westminster, S.W.1. June 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I read with great interest your valuable article on the Baker valve gear in your issue for June 11 (p. 587). The illustrations were particularly effective; but even so, there is nothing like seeing the actual gear in action. Apart from a few privately-owned models, I know of no locomotives in this country with the Baker gear; but one of these models must be remembered by many of your readers, as it was indeed in the heart of the Empire, and was passed by hundreds of people daily. I refer to the excellent model 4-8-4 locomotive which used to adorn the window of the Canadian National Railways office at the junction of Cockspur Street and Pall Mall East. The driving wheels were on rollers, and were kept slowly rotating, and it was fascinating to observe the action of the various components in the valve gear.

I do not remember any working model of the Baker gear in the Science Museum; this is a gap which certainly ought to be filled as soon as the museum is opened after the war. If the need for such a model for a national exhibition were known in the U.S.A., perhaps one of the great American locomotive building firms might be generous enough to present one to the nation, as an example of an essentially American development. Otherwise, there must surely be some means of getting a model made in this country.

Yours faithfully,

METROPOLITAN

MORE C.T.C. ON THE CHICAGO, BURLINGTON & QUINCY.—This railway, one of the most efficiently signalled lines in America, for which it has to thank the progressive spirit of its first Signal Engineer, the late Mr. J. B. Latimer, and the present holder of that office, Mr. W. F. Zane, has for some time had a large amount of C.T.C. in operation; the 112 mile installation between Denver and Akron is among the most remarkable yet installed. It has now added a further example of this equipment on the important single-line bottleneck between Aurora, about 40 miles from Chicago, and Steward Junction, on the St. Paul main line. Although the section is only 40 miles long the fact that it is single causes any delay or other train working alteration occurring on it to have considerable repercussion on the working of the adjoining double-line sections. It was accordingly desired to eliminate any loss of time occasioned by the dispatcher intervening. By giving him direct control over the section, stopping for train-order signals and setting points have been obviated.

## The Scrap Heap

The staff of the Inland Revenue Department has increased from 23,537 to 35,437 in three years.

Mr. A. Dawson, who has retired from the L.M.S.R. Estate Office in Manchester, never had a day's sick leave in 47 years' service.

Forty-three cents out of every dollar spent by the Canadian National Railways last year went for wages.

Found among salvage at an L.M.S.R. depot, an envelope bearing a Durham postmark and the date November 28, 1843, is to be used again with an address label.

Locomotives of the Canadian National Railways travelled 90,000,000 miles last year, almost the distance from the earth to the sun.

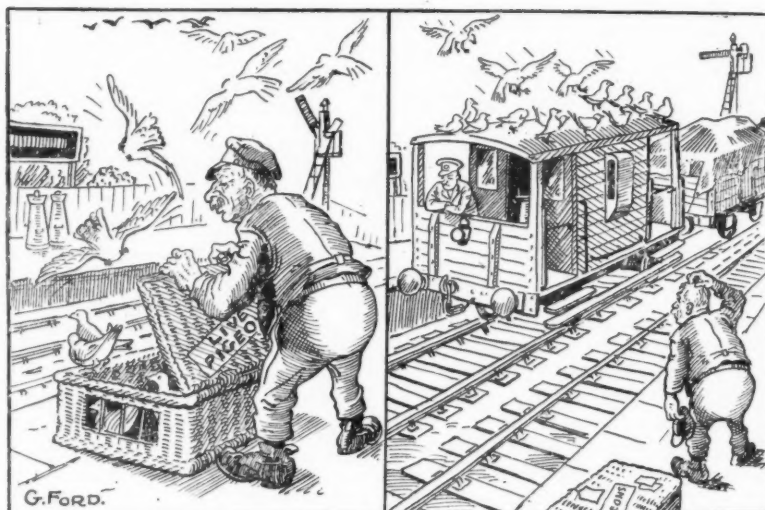
London bus chassis springs, when worn, are being cut down to make smaller springs. The discarded ends contain enough metal to make four cold chisels for use in the overhaul workshops.

"Defendant swears to being sober," observed the magistrate. "He was intoxicated, sir," insisted the constable. "If he'd been sober he'd have known how drunk he was and would have kept quiet."—From *"The Evening News."*

The Southern Railway lineside staff allotments extend for 166 miles, almost as far as from Waterloo to Exeter. There are now some 30 local staff allotments associations, and for some years garden shows have been held yearly at such places as Redhill, Brighton, Eastleigh, and Exeter.

### WARTIME RAILWAY BULLOCK-CART SERVICES

As a means of reducing non-essential rail haulage in India to a minimum and leave the trunk routes free for essential traffic, the North Western Railway has instituted a bullock-cart service along the Grand Trunk Road between Lahore and Amritsar, the two principal cities in the Punjab. It is significant that the 30-mile Lahore-Amritsar section is double-line and carries some of the fastest and heaviest main-line traffic in northern India. A reversion to the two-mile-an-hour bullock cart from 50-60 m.p.h. passenger and 40 m.p.h. goods train speeds is probably unique. Another bullock-cart service has been established



*It's quicker by rail*

by the same railway administration between Peshawar and Mardan in the North West Frontier Province. The railway is thus "getting some of its own back" out of its main competitor, the parallel main road, and is using the "permanent way" of the latter gratis.

### BERLIN OVERHEAD RAILWAY

It is reported that the Emperor has given his consent to the construction of the projected overhead electric railway in Berlin, which is to connect the eastern and western portions of the city, with branches in other directions. The scheme had been opposed by the Twelve Apostles' authorities, who objected to the line passing the Luther Church; their objections were upheld by the Minister of Worship, but when the scheme came before the Minister of the Council it was passed, and, on reference to the Emperor, was approved.—From *"The Tramway and Railway World,"* June, 1893.

### THE FORESIGHT OF MR. HYDE

The coal strike in the U.S.A. and the report that the Pennsylvania Railroad has only a fortnight's supply of coal recalls that in October, 1911, Mr. W. H. Hyde, the General Manager of the Great Eastern Railway (now part of the L.N.E.R.) foresaw coming coal troubles and advised his directors to agree to the laying in of great stocks of coal. Whitmoor, near March, now the site of one of the most

modern freight traffic centres of the L.N.E.R., was selected as the central store and here during the five months that preceded the coal strike of 1912 the G.E.R. built up a reserve of 120,000 tons of coal. Thanks to this foresight the G.E.R. was the only railway to continue a full service of passenger trains during the six weeks of the strike, and, furthermore, it provided all the special and excursion trains needed during the Easter holidays. Indeed, on the Thursday before Good Friday, trains were run in as many as seven sections, and no less than 106,876 passengers booked at Liverpool Street during the week.

### CHARITABLE PENALTIES

A new system of collecting excess fares from defaulting railway passengers and at the same time penalising them for the offence has been brought into operation by the Ceylon Government Railway. The defaulting passenger is given the choice of paying his excess fare provided he offers to contribute about five rupees or more to a fund or organisation carried on with the aid of public charity. In each case the ticket inspector or examiner has to take the defaulting passenger before the railway senior administrative officer in the district, who considers the offence. If this is serious, no option is allowed and the passenger is prosecuted. The contributions to charity collected in this way are paid by the railway authorities to a number of funds in rotation.

### TAILPIECE

(The London Passenger Transport Board was ten years' old on July 1)

Ten years has London been aware  
Of "L.P.T.B." everywhere;  
Ten years has London known the sign  
Of unity on road and line,  
New stations and new mileage seen,  
And trolleys where the trams had been.  
A decade this unknown before  
Of restless peace and bitter war.  
The system worked, the trains went through  
In spite of all the Hun could do.  
A line was smashed, they mended it,  
In midst of war extended it.  
And London Transport shares the glory  
Of London's proud and gallant story.

E. C.



*An artist's impression of one of the American-built "austerity" 2-8-0 locomotives now being used in this country, hauling a goods train*



**GREAT WESTERN RAILWAY.**  
LONDON to CIRENCESTER, BATH, BRISTOL, and TAUNTON.  
OPENING TO TAUNTON.

**OPENING TO TAUNTON ON 1st JULY, 1842.—SUMMER TRAINS.**  
*The Royal Hotel at Slough is your rendezvous.*

The

**N.B. TAUNTON** is about 30 miles from Exeter, and 79 miles from Plymouth. Horses and Carriages being at these Stations, which are distinguished by Black Letter Type, ten minutes before the time specified for the departure of a Train, will be conveyed on this Railway. **POST HORSES** are kept in readiness at the Principal Stations, and upon sufficient notice being given at Paddington, or at the Bull and Mouth Office, St. Martin's-le-Grand, would be sent to bring Carriages from any part of London to the Station, at a charge of 9s. west of St. Martin's Lane, and 10s. 6d. beyond it, both including Post Boy. Similar Notice may be given at Bristol for Carriages to be brought from Clifton or the neighbourhood, to the Bristol Station.

## TIME TABLE

[illegible]

Line	Station	Down Trains										Up Trains									
		Day	Mon	Tue	Wed	Thurs	Fri	Sat	Sun	Day	Mon	Tue	Wed	Thurs	Fri	Sat	Sun				
1	Swindon	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
2	Reading	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15				
3	Reading	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30				
4	Reading	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45	6.45				
5	Reading	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.55				
6	Reading	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10				
7	Reading	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25				
8	Reading	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40	7.40				
9	Reading	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55				
10	Reading	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10				
11	Reading	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25				
12	Reading	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40	8.40				
13	Reading	8.55	8.55	8.55	8.55	8.55	8.55	8.55	8.55	8.55	8.55	8.55	8.55	8.55	8.55	8.55	8.55				
14	Reading	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.10				
15	Reading	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25				
16	Reading	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40	9.40				
17	Reading	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55	9.55				
18	Reading	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10				
19	Reading	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25	10.25				
20	Reading	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40	10.40				
21	Reading	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55	10.55				
22	Reading	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10				
23	Reading	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25				
24	Reading	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40				
25	Reading	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55	11.55				
26	Reading	12.10	12.10	12.10	12.10	12.10	12.10	12.10	12.10	12.10	12.10	12.10	12.10	12.10	12.10	12.10	12.10				
27	Reading	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25				
28	Reading	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40				
29	Reading	12.55	12.55	12.55	12.55	12.55	12.55	12.55	12.55	12.55	12.55	12.55	12.55	12.55	12.55	12.55	12.55				
30	Reading	13.10	13.10	13.10	13.10	13.10	13.10	13.10	13.10	13.10	13.10	13.10	13.10	13.10	13.10	13.10	13.10				
31	Reading	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25	13.25				
32	Reading	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40				
33	Reading	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55	13.55				
34	Reading	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10				
35	Reading	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25	14.25				
36	Reading	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40				
37	Reading	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55				
38	Reading	15.10	15.10	15.10	15.10	15.10	15.10	15.10	15.10	15.10	15.10	15.10	15.10	15.10	15.10	15.10	15.10				
39	Reading	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25				
40	Reading	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40				
41	Reading	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55	15.55				
42	Reading	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10				
43	Reading	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25				
44	Reading	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40	16.40				
45	Reading	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55	16.55				
46	Reading	17.10	17.10	17.10	17.10	17.10	17.10	17.10	17.10	17.10	17.10	17.10	17.10	17.10	17.10	17.10	17.10				
47	Reading	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25	17.25				
48	Reading	17.40	17.40	17.40	17.40	17.40	17.40	17.40	17.40	17.40	17.40	17.40	17.40	17.40	17.40	17.40	17.40				
49	Reading	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55	17.55				
50	Reading	18.10	18.10	18.10	18.10	18.10	18.10	18.10	18.10	18.10	18.10	18.10	18.10	18.10	18.10	18.10	18.10				
51	Reading	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25				
52	Reading	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40	18.40				
53	Reading	18.55	18.55	18.55	18.55	18.55	18.55	18.55	18.55	18.55	18.55	18.55	18.55	18.55	18.55	18.55	18.55				
54	Reading	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10	19.10				
55	Reading	19.25	19.25	19.25	19.25	19.25	19.25	19.25	19.25	19.25	19.25	19.25	19.25	19.25	19.25	19.25	19.25				
56	Reading	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40	19.40				
57	Reading	19.55	19.55	19.55	19.55	19.55	19.55	19.55	19.55	19.55	19.55	19.55	19.55	19.55	19.55	19.55	19.55				
58	Reading	20.10	20.10	20.10	20.10	20.10	20.10	20.10	20.10	20.10	20.10	20.10	20.10	20.10	20.10	20.10	20.10				
59	Reading	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25				
60	Reading	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40	20.40				
61	Reading	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55	20.55				
62	Reading	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10				
63	Reading	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25	21.25				
64	Reading	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40				
65	Reading	21.55	21.55	21.55	21.55	21.55	21.55	21.55	21.55	21.55	21.55	21.55	21.55	21.55	21.55	21.55	21.55				
66	Reading	22.10	22.10	22.10	22.10	22.10	22.10	22.10	22.10	22.10	22.10	22.10	22.10	22.10	22.10	22.10	22.10				
67	Reading	22.25	22.25	22.25	22.25	22.25	22.25	22.25	22.25	22.25	22.25	22.25	22.25	22.25	22.25	22.25	22.25				
68	Reading	22.40	22.40	22.40	22.40	22.40	22.40	22.40	22.40	22.40	22.40	22.40	22.40	22.40	22.40	22.40	22.40				
69	Reading	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55				
70	Reading	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10	23.10				
71	Reading	23.25	23.25	23.25	23.25	23.25	23.25	23.25	23.25	23.25	23.25	23.25	23.25	23							

N.B.—Trains will stop on particular days as indicated by the letter.  
**T** Tuesday.—**W** Wednesday.—**S** Saturday.  
**N.B.** The time table is calculated throughout at London Time.

*Slightly reduced facsimile of the Great Western Railway of 101 years ago. It will be noticed that London time was used throughout, despite the difference of 15 min. in solar time between the then termini of this east-west railway. One of the explanatory notes (not reproduced) points out that third class passengers were conveyed only by the goods trains; this explains the inclusion of two scheduled goods trains daily. Seats for road coaches from Taunton to Exeter, Plymouth, Barnstaple, and other places could be secured at Paddington Station*

## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### NORTHERN IRELAND

#### Road and Rail Services

At a meeting in Belfast on June 4 railway stockholders appointed a deputation to wait on the Prime Minister for the purpose of urging the Government to carry out the provisions of the Road & Railway Transport Act (Northern Ireland), 1935. Senator M'Laughlin, who presided, said that under the Act it was the duty of the Northern Ireland Road Transport Board to secure, in conjunction with the railway companies, the provision of a co-ordinated system of road, railway, and other means of transport in Northern Ireland which would give efficient, economical, and convenient transport services to the public. If the board was unwilling to join with the railways in carrying out the provisions of the Act, it was up to the Government to see that it "toed the line."

Mr. Frederick Storey, Vice-Chairman of the G.N.R. Shareholders' Protection Association, said the latter felt that, unless something were done, the position of the railways and of transport generally would revert to the pre-war conditions of cut-throat competition and non-co-operation, with disastrous results. The Act of 1935 never had been carried out.

Mr. J. P. Birch said that the board was working with the railways to a certain extent. It would be very nice for the railways to share in the profits of road transport, but they must be fair to the board.

Mr. M. McCracken, Honorary Secretary of the Belfast & County Down Railway Shareholders' Protection Association, asked what consideration was due to the board, which had taken everything and had a complete monopoly of road transport. He thought that, with the two services working together after the war, there would be a reasonable profit for the shareholders, and the public interest would be served.

### SOUTH AFRICA

#### Working Hours and Overtime

The South African Railways & Harbours Administration has appointed a committee with the following terms of reference:—

(a) To examine and report on the hours of duty worked by all sections of the Administration's staff with a view to determining whether any reduction in the hours of duty laid down for any grade or section of the staff is justified; and if so, to what extent; the committee is to take into consideration in this connection the section of the Factories, Machinery & Building Work Act, No. 22, of 1941, relating to the hours of duty to be worked by employees whose working conditions of service are governed by its provisions and similar legislation.

(b) To examine and report on the rates of payment for weekday overtime and duty performed on Sundays and public holidays, having regard due in this connection to the relative provisions of the Factories, Machinery & Building Work Act, No. 22, of 1941, and similar legislation, with a view to determining whether any amendment of the scales of payment and the conditions relating thereto as now prescribed in the Officers' and Employees' Staff Regulations are justified; and, if so, in what respect.

Mr. J. H. Stewart, Member, Railways & Harbours Service Commission, has been appointed Chairman; and Messrs. L. C.

Grubb, Chief Superintendent (Motive Power) and S. P. Havenge, Superintendent (Operating & Commercial), Kimberley, South African Railways & Harbours, are the other members representing the Administration. There are four members representing the staff; and Mr. J. E. Connelly, Principal Clerk, General Manager's Office, is Secretary to the committee. Mr. R. M. Banks, Secretary, Federal Consultative Committee, has been appointed as adviser to the staff side of the committee. A fourth senior officer to represent the Administration will be appointed at a later stage.

### AUSTRALIA

#### Commonwealth Railways in 1942

Earnings of the Commonwealth Railways for the financial year ended June 30, 1942, exceeded working expenditure on all the four systems owned by the Australian Commonwealth. The preceding financial year, when the total earnings of all lines showed

AUSTRALIAN COMMONWEALTH RAILWAYS RESULTS IN 1942

	Financial year	Trans-Australian Railway	Central Australia Railway	North Australia Railway	Australian Capital Territory Railway	Total for all railways
Miles open for traffic...	1941-42	1,108 m. 16 ch.	771 m. 33 ch.	316 m. 40 ch.	4 m. 75 ch.	2,201 m. 4 ch.
Cost (excluding rolling stock)	{ 1942 1941	£8,105,660 £8,029,932	£4,354,887 £4,350,942	£2,654,590 £2,641,437	£86,462 £86,006	£15,201,599 £15,108,317
Cost per mile (excluding rolling stock)	{ 1942 1941	£7,314 £7,246	£5,645 £5,640	£8,387 £8,346	£17,511 £17,419	£6,907 £6,864
Cost of rolling stock...	{ 1942 1941	£1,369,334 £1,352,354	£530,313 £517,195	£115,332 £120,558	(a) (a)	£2,014,979 £1,990,107
Earnings	{ 1942 1941	£771,725 £488,390	£1,010,510 £276,831	£400,119 £195,543	£12,950 £10,056	£2,195,304 £970,820
Working expenses	{ 1942 1941	£643,030 £547,539	£462,688 £226,705	£241,948 £119,553	£9,133 £9,108	£1,356,759 £902,905
Productive train miles	{ 1942 1941	944,688 714,414	1,103,074 423,830	263,203 84,883	10,955 10,585	2,321,920 1,233,712
Earnings per train mile	{ 1942 1941	16s. 4d. 13s. 8d.	18s. 3½d. 13s. 0½d.	*30s. 4½d. *46s. 1d.	23s. 7½d. 19s. 0d.	18s. 11d. 15s. 9d.
Working expenses per train mile	{ 1942 1941	13s. 7½d. 15s. 4d.	8s. 4½d. 10s. 8½d.	†18s. 4½d. †28s. 2d.	16s. 8d. 17s. 2½d.	†11s. 8½d. †14s. 7½d.
Results of working (excluding interest)	{ 1942 1941	+£128,695 —£59,149	+£547,822 +£50,126	+£158,171 +£75,990	+£3,817 +£948	+£838,505 +£67,915
Interest	{ 1942 1941	£118,057 £119,038	£180,968 £180,413	£79,135 £79,730	£1,332 £1,342	£379,492 £380,523

(a) The rolling stock is the property of the New South Wales Railways

\* Includes earnings from tonnage dues, wharfage, shunting, handling of goods, sales of water, etc.

† Includes expenditure in handling goods on wharf and in sorting shed

an excess over working expenditure of £67,915, was the best previous financial result attained by the railways, but this was made up of operating surpluses of three of the four lines, and an operating loss on the Trans-Australian Railway. The total excess earnings in the year 1941-42 was £838,505, an improvement of £770,590 on the preceding year. The table above gives some statistics relating to each of the four lines, and the results are the subject of an editorial note on page 2.

### CANADA

#### New Montreal Terminal

The opening of the new central terminal of the Canadian National Railways in Montreal will take place on July 14. The Hon. J. E. Michaud, Minister of Transport, will perform the ceremony. Because of its long historical association with the city, the name Bonaventure will be transferred from the old to the new station, even though, for the period of the war, the James Street Station will continue in limited operation for the handling of Lakeshore suburban

traffic and certain troop movements. One of the reasons for the latter is the difficulty, at the present time, of obtaining the complement of electric locomotives required to handle all traffic through the tunnel and over the viaduct into the new station. All main-line traffic, with the exception of that now using the Moreau Street Station, will run in and out of the new terminal. The impossibility of obtaining adequate equipment while the war continues prevents the re-routing of the cars of the Montreal and Southern Counties electric lines into the new station, and until such equipment can be procured the company will continue to use its present station facilities at McGill Street. Reference to the new terminal was made in *The Railway Gazette* of May 7, and in various preceding issues.

#### Leave Travel

In reply to requests in the Canadian House of Commons, from members representing various parties, for free railway travel for members of the Armed Forces on leave, the Hon. J. L. Ralston, Minister of Defence, said recently that he would be glad if he could assure members that such a concession would be granted, but he

could not do so; nevertheless, their suggestions would be considered. The Minister added that he did not believe the problem of accommodation in passenger trains would be adjusted completely until travel was rationed.

### UNITED STATES

#### New Lines

Among lines in course of construction is a 10½-mile main-line deviation of the Nashville, Chattanooga & St. Louis Railroad between Camden and Denver, Tennessee, including a bridge over the Tennessee River, as the present line will be submerged by one of the barrage schemes of the Tennessee Valley Authority, which is carrying out the work.

The Chicago, Milwaukee, St. Paul & Pacific Railroad has been authorised by the Interstate Commerce Commission to build a 7-mile deviation from a point about 3 miles from Granger, Iowa, to a connection with its Chicago-Omaha main line a mile east of Woodward; this will relieve



the company of the necessity of rebuilding a large bridge carrying the existing branch across the Des Moines River. The cost of the work is estimated at \$253,000.

The 1943 plans of the Missouri Pacific Railroad include 306 miles of relaying in the Western, Southern, and Texas Districts, mostly with 112-lb. rail; completion of the centralised traffic-control installations in the Arkansas Division; improvement of various marshalling yards, including nearly 5 miles of new trackage at the Alexandria yard in Louisiana; and raising of the track at five locations in the Eastern Division as a protection from flood damage.

The Memphis Union Station Company is spending \$100,000 on improvements to the station and yards of Memphis, Tennessee.

#### The Erie 1942 Report

The record created by the Erie Railroad in paying a dividend on its common stock for the first time in 76 years (see *The Railway Gazette* of January 22, page 88), makes its 1942 report of particular interest. As compared with 1941, gross operating revenue increased by \$26,508,151 to \$133,353,572, whereas the increase in operating expenses was one of \$12,493,361 only, to \$84,642,469. This brought the operating ratio down by no less than 12.1 per cent. to 63.5 per cent. Although tax deductions were more than doubled in a single year (\$19,505,471, as compared with \$9,175,224), operating income increased by \$3,285,937 to \$25,372,902.

Total fixed charges remained practically unaltered, and left a net income of \$14,902,736, or almost exactly double the \$7,868,871 of 1941.

#### No I.C.S. Dividend for 1942

The Illinois Central System is paying no dividend for last year, despite record traffic, chiefly because of the necessity for paying off its loans and improving its property and equipment. In 1942, part repayment of a loan from the Reconstruction Finance Corporation absorbed about \$10,000,000; \$6,700,000 went in improvements to property; \$4,600,000 was used to purchase the railway's own bonds; and the remaining \$3,700,000 of profits was added to working capital. The last dividends on common stock and non-cumulative shares were paid in 1931.

#### Railway Purchases in 1942

During 1942 the purchases by Class 1 railways of fuel, material, and supplies were greater than in any year since 1929; the aggregate expenditure was \$1,329,535,000 in 1929; \$1,161,274,000 in 1941; and \$1,259,811,000 in 1942. In some directions, however, due to shortage of supply, purchases showed a decline below the 1941 figures; on iron and steel products, for example, \$433,089,000 was expended as compared with \$456,147,000. Locomotive and wagon castings, beams, couplers, frames, etc., cost \$61,539,000, as compared with \$67,501,000; but steel rails absorbed \$55,647,000, compared with \$52,234,000; other track-laying materials, at \$53,349,000, were \$1,609,000 up on the previous year; and wheels, axles, and tyres accounted for \$41,501,000, as compared with \$36,913,000 in 1941. Interlocking and signal purchases went up from \$18,730,000 to \$21,245,000. Some of the biggest increases were in fuel purchases—a direct outcome of the very considerable rise in traffic. The total fuel cost in 1941 was \$349,765,000, but in 1942 it amounted to \$426,335,000; of this bituminous coal (\$312,787,000) accounted for \$53,459,000 of the increase, and fuel oil (\$99,767,000) for \$22,250,000. Purchases of forest products, such as sleepers, timbers, and lumber

for coach and wagon construction, increased from \$103,711,000 in 1941 to \$115,227,000 in 1942; of this total, sleepers and timbers for permanent-way work alone showed an increase from \$56,058,000 to \$71,188,000. Miscellaneous purchases mounted from a total of \$251,591,000 in 1941 to one of \$285,160,000 in 1942.

## PERU

### Flood Damage Restoration

The reconstruction of the Government section of the Chimbote Railway, which was damaged by floods at Huaraz in 1941, is now in progress.

### Proposed New Lines

A railway to the copper district of Yauricocha is under construction by a private company.

Additional rails are to be laid on the Cuzco to Santa Ana State Railway.

The Matarani Railway is in course of being surveyed, states a recent Peruvian Government report.

The extension of the Pachitea line, now under construction to aid the commercial extraction of timber, is regarded as an increasingly important work. Reference to this line was made at page 584 of our June 11 issue.

### Closed Lines

Traffic on the Ilo-Moquegua and Tablonas-Huallanca lines has been suspended for some time. The re-opening of these sections, both part of the State Railways, is urgently needed.

## SPAIN

### Rolling Stock Position

The Spanish Government Comisaria de Material Ferroviario (Railway Equipment Commission) has published the following figures showing the rolling stock position in the country before the civil war, at the lowest point after the civil war, and towards the end of last year when the reconstruction was nearing completion:—

*Pre-civil war, July, 1936, standard-gauge railways:* 2,800 locomotives, 4,383 carriages and vans, 69,222 goods wagons.

*End of civil war, lowest point, April, 1939:* 1,837 locomotives, 1,740 carriages and vans 41,700 goods wagons.

*End of November, 1942:* 2,550 locomotives, 3,168 carriages and vans, 69,392 goods wagons. Under construction: 219 locomotives, and 36 electric locomotives and 30 two-car electric units to be used on the electrified section Madrid-Avila-Segovia, whereby 80 steam locomotives will become available for use on other lines.

The Commission considers that the pre-war situation has been restored, taking into consideration the simplified operation methods since introduced. The position of 1936 has likewise been restored on the narrow-gauge system.

### State Railway Loan

According to an Order of the Finance Ministry dated March 22, and published in the Madrid *Boletín Oficial* of March 23, practically all the share and debenture holders of the Northern and Madrid, Zaragoza & Alicante Railway Companies have exercised their option to exchange their holdings for State 3½ per cent. Loan, in accordance with the Law of February 27 last (see *The Railway Gazette* of May 14, page 477). An annex to the Order gives in detail the amounts of the arrears of interest due on each class of debenture

since 1936, and which amounts are included in the liquidation in each case. The Central Aragon and Portugalete Railways are included in the list as subsidiaries of the Northern Railway. The capital thus passing into the possession of the State amounts to a nominal value of 2,677 million pesetas, in exchange for State Loan to the value of 1,929 million. The length of line comprised in the transaction is 7,910 km. (4,915 miles) of the total length of 12,695 km. (7,888 miles) of the broad-gauge system taken over under the Law of 1941.

### The Galdames Mining Railway

The Diputación de Vizcaya has put up for sale by public auction the narrow-gauge mining railway known as the Sestao-Galdames line. This railway, 15 miles in length, belonged to a British concern, the Bilbao River & Cantabrian Railway Co. Ltd., until the mines ceased to work a few years ago and the line was abandoned by the company.

### Narrow-Gauge Line Reopened

On January 1, 1943, the narrow-gauge line from Madrid to Colmenar de Oreja was reopened, after having been closed since the civil war. This line was first opened in 1912; it is 64 km. (40 miles) long, and has now been taken over by the State.

## CEYLON

### Sunday Trains for Workmen

Although no ordinary train services are being run in Ceylon on Sundays, it has been announced that a skeleton service for the convenience of those employed in essential services is to be operated in the mornings and evenings. Accommodation will be confined to monthly-ticket holders.

It has been decided also to run one Sunday morning train on each line to enable passengers who travel by the mail trains to Colombo on Saturday night to reach their destinations the next day.

### Lighter Holiday Traffic

Holiday traffic on a much lighter scale than in previous years, due to the curtailment of Government holidays, and restricted travelling facilities, was experienced by the Ceylon Government Railway during the Christmas and New Year periods. For the first time, no special arrangements were made by the administration to cope with the additional volume of traffic usual at these times. No special trains were run, nor were any more sleeping-berths booked or provided than are allotted on normal night mail trains.

### Train Lighting

Railway-carriage lighting is to be improved as the result of the authorities having obtained equipment which lately has been in short supply. On the coast line, however, lighting will be allowed only during station stops, in accordance with blackout regulations. The illumination will assist considerably the examination of tickets and the prevention of theft.

### More Sunday Trains

Some mitigation of the recently-announced Sunday train restrictions, involving the virtual cancellation of services, is stated to be likely. It is considered that a further curtailment of weekday services may render possible the running of a few trains on Sundays, and that the issue of ordinary tickets, as opposed to the restriction of travel to season-ticket holders, will prevent undue hardship to those wishing to travel on urgent business.

## A Modern Treatment Plant for Locomotive Water

*This plant which delivers 120,000 gal. of treated water hourly is attended by only one man*

RECENTLY the water treatment plant of the Pittsburgh & Lake Erie Railroad at McKees Rocks, Pennsylvania, where there are large engine sheds of that company, has been completely modernized. The equipment in the original treatment tank has been replaced by an improved system, largely automatic in operation, which has simultaneously increased the efficiency of the plant, reduced the time during which the water requires to be held in the plant for treatment, and improved the quality of the water. The original plant was one of ten of the Kennicott type installed by the P. & L.E.R.R. as far back as 1903; with a capacity of 60,000 gal. it was the largest of the ten. These Kennicott water-softeners were designed for continuous treatment in a vertical cylindrical tank by the cold lime-soda ash process;

to provide for this increased demand, it was decided that the most economical method would be by the installation of a Spaulding precipitator in the existing treatment tank. This relatively new system of treatment is based on the older cold lime-soda ash treatment, but the method of application is entirely different. In the mixing zone of the treatment tank the water and the chemicals are agitated, and the sludge particles are kept in suspension, by the action of slowly-revolving agitator blades. Near the bottom of the tank the water and the precipitates pass through a constricted opening into the filter zone, where a filtering action takes place as the water passes upwards through a filter bed consisting of the sludge that has been carried down from the mixing zone; it is this intimate contact of water and sludge in both zones that constitutes

was sufficiently large to permit the installation of what is, in effect, a "double-deck" plant, with one mixing zone serving two filter zones, one above the other; this arrangement has been an important factor in giving the total treatment capacity required. At the base of the tank a concrete floor is provided for the mixing chamber, into which the water and the chemicals are introduced by separate feed lines. Above the mixing chamber is the lower filter chamber, with its tapered sides, arranged concentrically round a large central up-flow passage leading to the upper filter chamber. In each of the filter chambers there is a number of sludge-concentration pockets from which the sludge is removed through pipes fitted with diaphragm valves that are opened by solenoids; these are operated automatically at regular intervals by a time-switch. There are four blow-off valves, and their control is interconnected with that of the main water-supply pumps in such a way that the amount of sludge drawn off is proportionate to the flow of water and chemicals entering the tank.

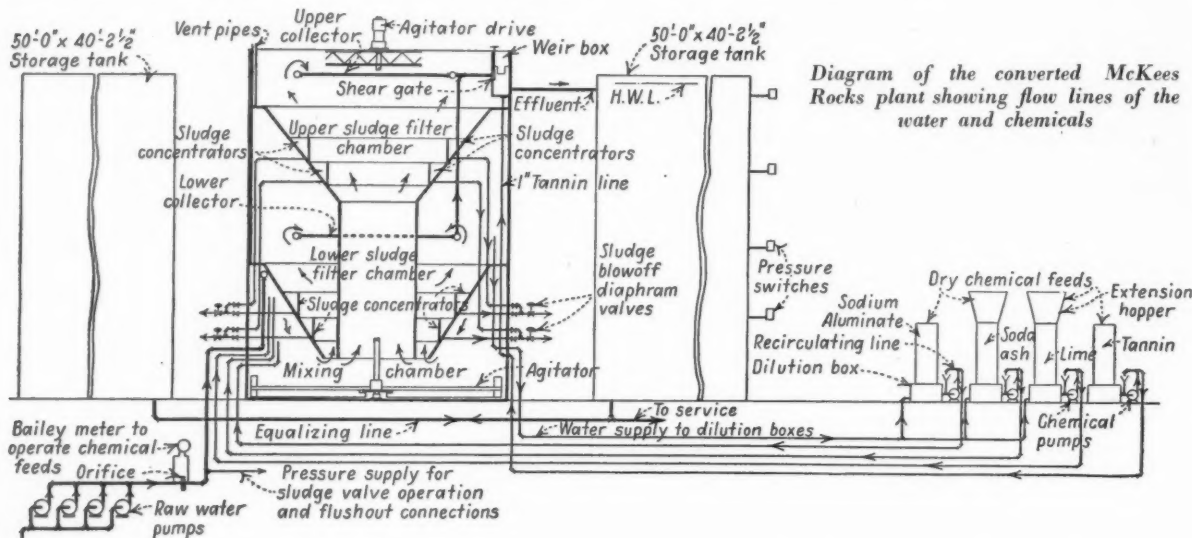


Diagram of the converted McKees Rocks plant showing flow lines of the water and chemicals

chemicals, mixed in the proper proportions, were introduced at the top of the tank, from which they passed through a downcomer to the bottom, and then, up through a series of perforated conical baffle-plates, designed to catch any precipitate still remaining. As the treated water reached the top of the tank again, it passed through a filter, and was then drawn off into the storage tank. Sludge from the treating process settled in the bottom of the tank, which was provided with discharge outlets for its removal. The original treatment tank at McKees Rocks was 32 ft. 7 in. in dia. and 43 ft. high, and was flanked by two storage tanks each 50 ft. in. dia. and 40 ft. high, holding 570,000 gal. apiece. Water is obtained from four deep wells, each equipped with a motor-operated turbine pump; three of the pumps have a capacity of 500 gal. per min., and the fourth is of 1,000 gal. per min.

By degrees the demand for water at McKees Rocks outgrew the capacity of the plant. To obtain 1,250,000 gal. a day, water was being put through the plant at such a speed that precipitate was being carried over into the storage tanks;

the unusual feature of the Spaulding treatment. The sludge-filter chamber is so designed that it gradually increases in cross-sectional area from the bottom upwards; as the area enlarges, the upward velocity of the water decreases, and a level is reached in the filter zone above which the upward flow is insufficient to carry the sludge particles with it. It is through this bed of suspended sludge particles that filtering takes place; water that emerges from the top of the sludge bed is regarded as completely treated, and is then drawn off to the storage tank. As the particles in the sludge bed become coated with finer particles rising into the filter section they grow in size until the upward flow of water can no longer keep them in suspension, after which they descend to the mixing chamber; there is thus a constant flow of sludge particles into the filter section, and of larger particles in the opposite direction. The action of the agitator blades prevents the sludge from settling in the bottom of the tank; removal of sludge is accomplished by drawing it off automatically from sludge-concentrator pockets in the filter zone.

The treatment tank at McKees Rocks

An adjacent building houses the chemical feeding and proportioning equipment. Four materials are used—lime, soda ash, sodium aluminate, and tannin, the last named to prevent foaming in the locomotive boilers arising from the use of softened water—and these are supplied from dry feeders, one for each chemical. Beneath each of the feeder bins is a mixing-pot into which the chemical falls as it is ejected from the bin by the discharge mechanism. The latter, in its turn, is actuated by the chemical proportioning system, which consists of a Bailey meter located in the water supply line, adjusted to work the feeding devices in the bins once to every 1,000 gal. of water passing through the supply line. In the mixing pots the chemicals are mixed with softened water from the treatment tank, and are then forced into the main chemical supply line, there being a small motor-operated pump and delivery line for each chemical. All the chemicals except the tannin are introduced into the mixing chamber of the treatment plant; the tannin is added to the water after treatment is complete. To remove the treated water from the



tank, perforated collector pipes are installed in each of the two filter chambers; through these pipes the water passes through a shear gate into a weir box, where the tannin is added. From the latter the water flows directly into one of the adjacent storage tanks, and the height of water in each tank is maintained at an even level by underground equaliser lines. In the reconstruction a third 570,000 gal. storage tank, of the same dimensions as the other two and of all-welded steel construction, was added, giving a combined maximum storage capacity of 1,710,000 gal. of treated

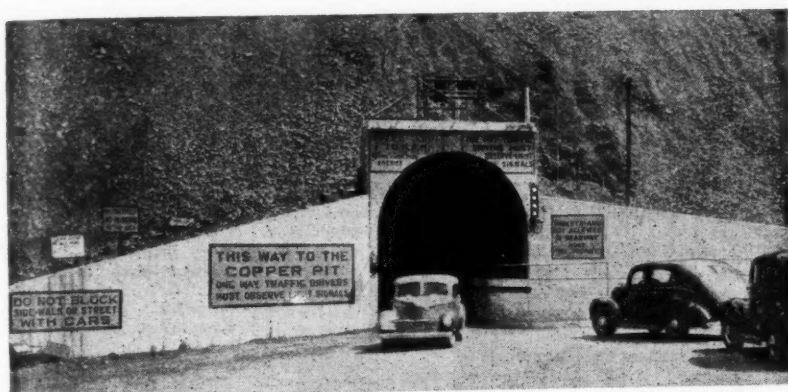
water. The plant is designed to treat 120,000 gal. of water in 1 hour.

At the extreme bottom of the treatment tank is the agitator, which is driven through a vertical shaft by a motor carried on a steel truss across the top of the tank. A four-speed drive is provided, so that the time of a complete revolution can be varied from 35 sec. to 53 sec., 69 sec., or 105 sec.; the speed can thus be adjusted to meet the needs of the treatment process at any given time. The control panel for the motor-operated pumps supplying water to the plant is located in the chemical house. Four

mercury pressure-control switches, located at different levels in one of the storage tanks, govern the working of the pumps, and coloured lights on the control panel show which of the pumps are in operation. The whole of the manual attendance required to keep the plant in continuous operation is supplied by one man working an 8-hr. shift daily. We are indebted to our American contemporary, *Railway Engineering & Maintenance*, for the drawing reproduced, and for the detailed description of the McKees Rocks plant on which this brief account is based.

## Signalling in Single-Line Roadway Tunnel

*Photo-electric cells are used in the Bingham Tunnel, U.S.A., to control single-line traffic*



*Tunnel traffic controlled by photo-electric relays. A motorcar is seen emerging from lower portal of this single-line tunnel; others are waiting to enter*

AT Bingham, Utah, U.S.A., a highway tunnel, 6,000 ft. long, was constructed some three years ago to afford facilities previously given by the ordinary highway, now abandoned, which crossed the body of the ore exploited by the Utah Copper Company and had to be given up when the activities of that undertaking encroached on the area concerned. A tunnel for two lines of traffic would have been very expensive, but one for a single line was practicable if some satisfactory signalling system could be devised which would prevent vehicles travelling in opposite directions entering the tunnel at the same time.

The American General Electric Company succeeded in designing a suitable arrangement and the tunnel was accordingly built for a single line of vehicles with a separate railed footpath on one side for pedestrians. The signals at each mouth are of the well-known three unit traffic light type and controlled by a relay system embodying time action, photo-electric apparatus for beam detection and registering of passing vehicles, and a special gas detection device which comes into action to stop all further traffic entering and to start a ventilating fan if the carbon-monoxide in the tunnel exceeds a certain figure. As track circuit, as known on railways, is not practicable for road vehicles, some alternative had

to be found, and this is done by counting each vehicle as it passes in and out of the tunnel. Traffic is allowed to flow in one direction for 3 minutes, after which the stop signal is exhibited until all vehicles which have entered have been counted out, when the signals are set to permit of the traffic passing in the opposite direction for the same period. If the tunnel is not registered as clear within 5 minutes after the last car entered behind the stop signal an alarm signal sounds and it is then the duty of an official to ride through and find out what has occurred. If the apparatus should have failed to clear the road he can reset the equipment to normal.

The tunnel is on an up grade of about 1 in 17 and ordinarily the natural draught is enough to ventilate it; the fan is needed only when traffic is unusually dense. The only practical difficulty experienced has been occasional false counting due to pedestrians, who are prohibited from passing along the roadway, doing so, generally on purpose, and obscuring the beams directed on the photo-electric cells. About 600 vehicles pass through the Bingham tunnel every 24 hr.

The accompanying particulars are based on an article in the journal of the Brotherhood of Locomotive Firemen & Enginemen of America.



*Upper portal, Salt Lake County tunnel at Bingham, Utah, showing ventilating blower on right, and roll door (above, entrance on left) which closes automatically when blower starts*

## The Railways of Colombia

*Isolated lines built in connection with river services are gradually being developed into a connected central railway system*

**COLOMBIA**, the sixth largest country in South America, occupies an area estimated at 440,846 sq. miles, with coast lines of 465 miles on the Pacific Ocean and 640 miles on the Caribbean Sea. According to the 1938 census, the population was 8,693,560. The three great ranges of the Andes, running parallel north and south, isolating the principal centres of production, and dividing the country and people into several regions, have made transport

costly and difficult. The river Magdalena and its tributaries constitute the main arteries for the conveyance of passengers and freight, and the railway system is formed of a number of more or less detached lines working in many cases in connection with the river services, either as intermediaries between the river and the inland centres or as connecting links where navigation is interrupted by rapids. Around Bogotá, the capital, a continuous network

is gradually growing up, by the linking of individual railways, so as to form a unified system, controlled by an Administrative Council in Bogotá; each individual railway, however, has its own management locally.

In view of these natural difficulties, it is not surprising that private enterprise has had but a small part in the railway development of the country. The present policy of the Government is to nationalise all the railways, and the few remaining privately-owned lines are one by one being taken over. The Barranquilla, Cartagena, and Santa Marta (now Magdalena) Railways are recent examples of acquisition by the State, generally by purchase for an agreed sum payable in annual instalments. Originally concessions were granted on a subsidy basis and the first nationalisation law was passed after the civil war of 1905. Later there was a reversion to the system of subsidies, but finally the present policy was adopted in 1922, when the Northern Railway was taken over.

A somewhat unusual feature is the part or entire ownership of some of the railways by the Departments or Provinces. In such cases the railway is worked independently by the Department. Of the total of 2,106 route-miles now working, 1,475 miles, or 70 per cent. are owned by the State, 480 miles, or 22 per cent., by the Departments, and the remaining 151 miles, or 7 per cent., by private companies. Of the State-owned railways, 1,357 miles are operated by the Government and 118 miles are leased to a private company.

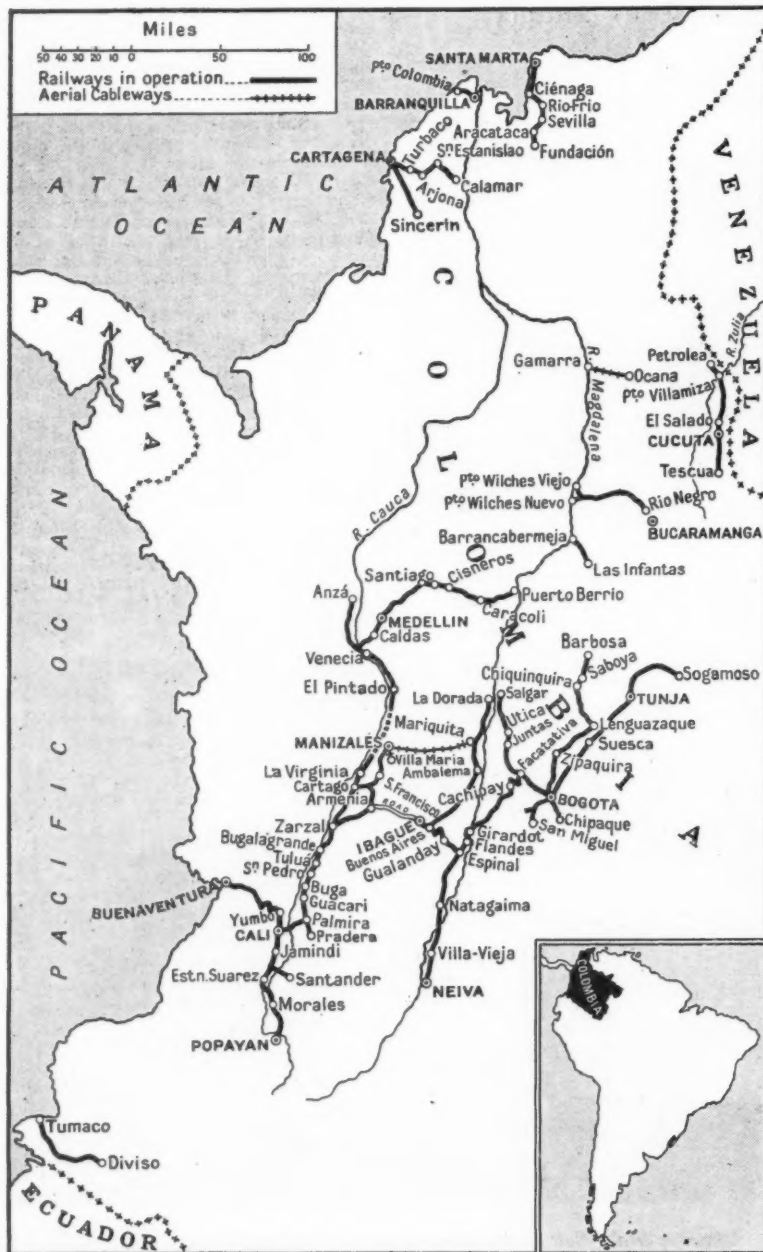
The following is a list of the Colombian railways :—

Railways	Gauge	Miles
National Railways (operated by Administrative Council)		
Pacific .....	3 ft.	449
Central Northern, 1st Section .....	Metre	73
2nd Section .....	"	167
Girardot-Tolima-Hulla .....	3 ft.	229
North Eastern .....	Metre	157
Cundinamarca (formerly Sabana Railroad) .....	3 ft.	134
Nariño (Tumaco-Diviso) .....	"	65
Cartagena-Calamar .....	"	17
Barranquilla .....	3 ft. 6 in.	65
State-operated total .....		1,357
National Railway (leased)— Magdalena (formerly Santa Marta) (leased to National Fruit Company)	3 ft.	118
State-owned total .....		1,475
Departmental Railways—		
Antioquia (El Pinado—Pto Berrio)...	3 ft.	214
Caldas (Manizales) .....	"	73
Ibagué-Amalema .....	"	40
Amaga (and Cauca Extension) .....	"	30
Nacederos-Armenia .....	"	65
Southern (Bogotá-San Miguel) .....	Metre	31
Central Bolívar (Cartagena-Gambotá)	3 ft.	27
Departmental railway total .....		480
Privately-owned Railways—		
Dorada Railway .....	3 ft.	69
Cúcuta Railway .....	Metre	62
Barracabermeja (Tropical Oil Company)		20
Private railway total .....		151
Grand total .....		2,106

\* The Cundinamarca Railway, handed over to the National Administrative Council for operation in 1938, is owned to the extent of 77 per cent. by the Department of Cundinamarca.

The gauge of the Colombian railways is mostly 3 ft. or 1 metre. About 75 per cent. of the aggregate mileage is on the 3-ft. gauge and the remainder on the metre gauge, except the 17 miles of the Barranquilla Railway, which is 3 ft. 6 in.

Aerial cableways are in use for the transport of goods, and in at least one case for passengers. The British-owned Dorada Railway has for many years past operated a ropeway between Mariquita and Manizales, 72 km. (45 miles) in length, one of the longest overhead ropeways in the world. Another ropeway is that owned by the Government, between Gamarra and Ocaña,



*Sketch map of the railways of Colombia, showing relationship to the rivers, which form the principal means of internal communication*

(Continued on page 16)

## Railway Track Construction and Train Operation

*A proposed basis on which the combined factors may be studied*

*By Thompson Fairless, A.M.I.Mech.E.*

THE roadway will challenge again the railway in many parts of the world, and it is imperative for the railway constructional engineer to give due consideration to train operation when putting forward projects for railway construction, or for deviations, or modifications to the location of track. Many railwaymen still speak and think of the ruling grade on any section of track as the predominant feature; this is correct as far as maximum loads which can be hauled is concerned, although requiring some qualification where the ruling grade is sufficiently short to be able to be treated as a velocity grade by virtue of the inertia of the train at the foot. What is just as important is that consideration be given to the operation of trains over the complete section of any new project, so that operational costs will have their justified consideration in conjunction with the estimated cost of earthwork, bridges, culverts, and track-laying, remembering that the cost of haulage is directly proportionate to track resistance and that any extra expenditure in the reduction of track resistance amply may be recompensed.

The primary object of this article is to describe a procedure which may be used to make comparisons of train operation over alternative track projects, deviations, and so on, and to show the results in terms of a "train-operating factor." A hypothetical case of comparison between two alternative deviations, one 13.204 km. (8.2 miles) long, and the other 12.130 km. (7.533 miles) long (see Fig. 1) will serve this purpose: the calculations are:—

*Analysis of deviation No. 1: 13.204 km. long (Outward). Rising grades "Out."*

The total heights at the top of all rising grades are 699.95 m., and the total heights at bottom of rising grades are 678.78 m., giving a difference or total rise of 21.17 m.

The total length of these rising grades is 4,500 m., which gives an average rising grade of 1 in 212.

Average curve resistance on rising grades "Out" :—

Radius of curve	Curve resistance in lb. per ton	Length of curve	Curve moment
600 m. ...	2.5	250	625
1,800 m. ...	0.83	418	347
600 m. ...	2.5	300	750
1,000 m. ...	1.5	200	300
1,000 m. ...	1.5	450	675
		<b>1,618</b>	<b>2,697</b>

The curve resistances are based on a resistance of 5 lb. per ton for a 300-m. radius curve, and with larger curves inversely proportionate.

Average resistance  $2,697 \div 1,618 = 1.67$  lb. per ton.

Total length of rising grades = 4,500  
Total length of curves = 1,618  $= 2.78$

The average curve-resistance throughout the total length of rising grades =

$$\frac{1.67}{2.78} = 0.6 \text{ lb.}$$

Total grade, curve, and rolling resistance on average rising grades of 1 in 212 :—

Grade resistance 1 in 212 = 10.3 lb. per ton  
Average curve resistance = 0.6 lb. per ton  
Rolling resistance at 38½ km.p.h. = 7.9 lb. per ton

Total resistance = 18.8 lb. per ton

Goods-train resistance in lb. per ton (including allowance for track and wind resistance) :—

km.p.h.	lb.
15	6.40
20	6.75
25	7.05
30	7.35
35	7.70
40	8.10
45	8.45
50	8.90
55	9.35
60	9.85

The rolling resistance of 7.9 lb. at 38½ km.p.h. shown in the foregoing calculation is the train resistance at the average speed at which the locomotives can haul their respective loads on the average up-grade.

For the purpose of illustration the loads are based on the maximum that can be hauled on a 1 in 75 grade, and by making reference to the "available tractive-effort curves" (see Fig. 2) it will be seen that the three classes of engines can haul their respective loads up the average 1 in 212 grade at 38½ km.p.h. :—

	"X"	"Y"	"Z"
Load (tons) ...	505	625	725
Engine & tender (tons) ...	90	100	110
Gross Load ...	595	725	835
Tractive effort ...	11,190	13,630	15,700
Speed (km.p.h.) ...	38½	38½	38½

These tractive-effort curves may be applied to any calculations similar to those under review where the comparison of train operation over alternative railway tracks is being studied, and are representative of 4 ft. 8½ in.-gauge traffic engines having the following leading particulars:

Class	"X"	"Y"	"Z"
Type ...	2-8-0	2-8-0	2-8-0
Cyl., in. ...	19 × 24	20 × 26	17½ × 26 × 3
Coupled wheels, dia. 4 ft. 6 in. 5 ft. 0 in. 5 ft. 0 in.			
B.p. lb. per sq. in. ...	160	180	180

The method by which the "available tractive-effort curves" are produced is described in a paper by the author on "The Application of the Locomotive to Traffic Working" in the *Proceedings of the Institution of Mechanical Engineers*, Vol. 136 (1937), page 333.

The total time occupied in hauling the train through the deviation is shown on the speed graph (see below) where the speed on the grade of 1 in 212 is plotted at 38½ km.p.h.; the remaining part is composed of level track and down grades, and the train can be run at an average speed of 50 km.p.h. with a maximum permissible speed of 55 km.p.h. The total time occupied is shown to be 17½ min.

The grouping together of all rising grades and finding the average speed at which the train can be hauled gives practical results for all comparative purposes, and neglects actual running conditions where the effect

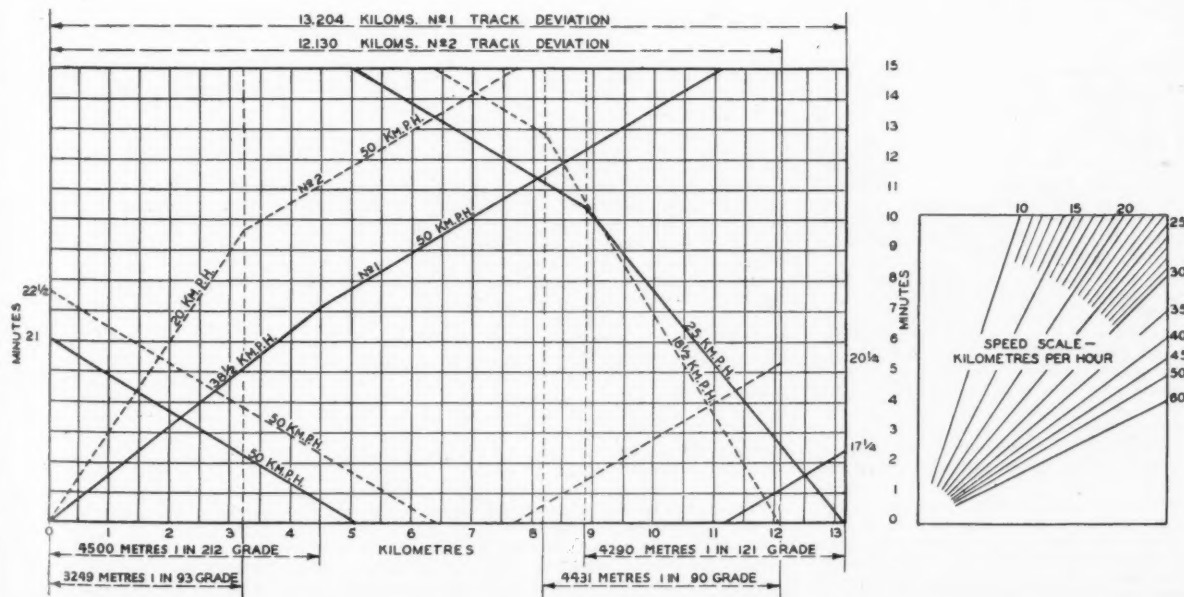


Fig. 1—Left: Diagram of comparison between alternative deviations. Right: Speed graph



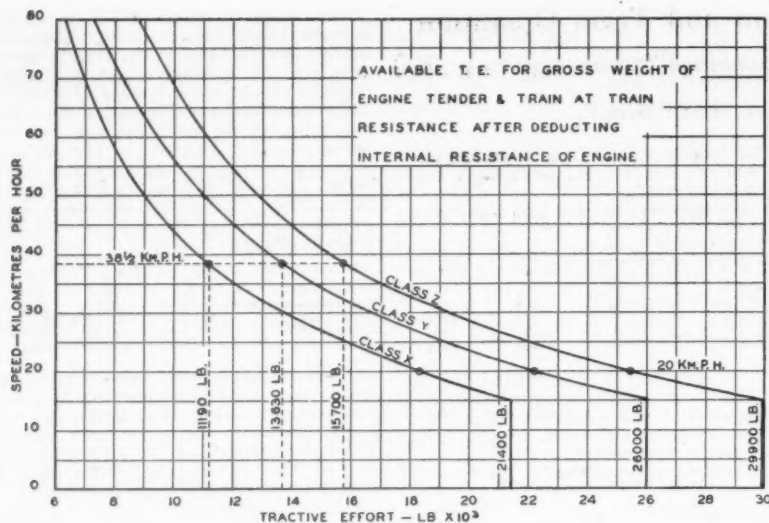


Fig. 2—Diagram showing available tractive effort curve

of the inertia of the train at the foot of each rising grade would result in a higher average speed on the total grades; this difference in speed is compensated for on the time-speed diagram where no time allowance has been made for acceleration after the train reaches the top of each grade.

Analysis of deviation No. 2: 12·130 km. long (Outward).

The procedure for the analysis of this deviation is made in the same manner as that dealt with for deviation No. 1, and the

average rising grade is 1 in 93 for 3,249 m. Velocity of trains on average rising grade of 1 in 93 is:—

Grade resistance 1 in 93	= 23·65 lb. per ton
Average curve resistance	= 0·27 lb. per ton
Rolling resistance at 20 km.p.h.	= 6·75 lb. per ton
Total resistance	= 30·67 lb. per ton

Class of engine	Gross load	Tractive effort	Speed in km. p.h.
"X"	595 × 30·67 =	18,250	20
"Y"	725 × 30·67 =	22,230	20
"Z"	835 × 30·67 =	25,600	20

The total time occupied in hauling the train through the deviation No. 2 is shown on the speed graph, viz., 20½ min.

On the "Inward" direction, the gross tonnages used for this calculation are 610, 745, and 855, and the running times when plotted on the speed graph are found to be 21 and 22½ min. for deviation No. 1 and No. 2 respectively.

The train operating factor is obtained by adding together the gross tonnages and dividing by the running time.

Deviation No. 1 Outward	gross tonnages	...	= 2,155 ÷ 17½ = 125
Deviation No. 1 Inward	gross tonnages	...	= 2,210 ÷ 21 = 105
			<b>4,365 38½</b>

Deviation No. 2 Outward	gross tonnages	...	= 2,155 ÷ 20½ = 106
Deviation No. 2 Inward	gross tonnages	...	= 2,210 ÷ 22½ = 98
			<b>4,365 42½</b>

It will be seen that any modification made to improve, that is, to increase, the train-operating factor would be beneficial in both directions; therefore it is considered that the combined operation of the trains should be used for the purpose of making comparisons.

Deviation No. 1	4,365 ÷ 38½ = 114
Deviation No. 2	4,365 ÷ 42½ = 102

This calculation shows that deviation No. 1 has a train-operating factor 11·7 per cent. better than deviation No. 2, but there is in the case of deviation No. 1 an increase of nearly 9 per cent. in train-km., and these are the factors which should receive their due consideration in conjunction with track-laying costs.

The foregoing article was shown to Mr. P. Protopapadakis, who has written a letter to the Editor on the subject which appears on page 6.

## THE RAILWAYS OF COLOMBIA

(Concluded from page 14)

47 metres (29 miles). There is also a cable-way between Manizales and Villa Maria.

The most important of the Colombian railways is the Ferrocarril del Pacifico, which serves the Pacific port of Buenaventura and will eventually give through rail connection between that point and Bogotá, 480 miles inland; it will also form, with the Antioquian system and the Magdalena river a through route from the Pacific to the Atlantic. The programme of railway construction approved by Law 204 of 1936, is still in course of execution, financed with the issue of Railway Bonds to the value of 15,000,000 pesos in 1939.

The principal works remaining to be carried out include two link lines, one of about 100 km. to bridge the gap between Ibague and Armenia, and so join up the two sections of the Central Northern Railway; and the other to connect La Virginia and El Pintado. This latter extension, of which a relatively short section remains to be completed, is the last link required to give direct communication between Buenaventura and Puerto Berrio on the Magdalena, via Medellin. The projected line between Bogotá and Puerto Wilches will, no doubt, be completed some day. A new highway service between Armenia and Ibague has reduced the journey between Bogotá and Buenaventura from nine to two days.

None of the Colombian railways has been electrified, but railcars are in use on some of the lines. Recent orders for rolling stock have been executed in the U.S.A. Travel in Colombia is being revolutionised, for those who can afford it, by air transport.

Bogotá stands on a plateau, 8,560 ft. above sea level, with high mountains surrounding it. From Barranquilla the journey by river boat on the Magdalena to La Dorada and thence by rail to Bogotá, takes four or five days; by air the distance of 549 miles is covered in three hours.

**CLEANING LONDON TRANSPORT LAMP-SHADES.**—Lampshades in London Transport railway carriages, formerly washed by hand, are to be cleaned by machine. This is because of the difficulty in obtaining the rubber gloves which the cleaners normally use to protect their hands from the caustic solution. A machine has been designed which will not only clean the shades thoroughly, but will do it much quicker. By present methods, 3,200 shades are cleaned daily at six car depots. It is estimated that one machine alone could deal with 2,000 a day. One is, therefore, to be made as an experiment and, if it is successful, three more will be placed in service. The machine will consist of a tunnel through which the lampshades will be carried by a circular conveyor, and in which they will be subjected successively to a spray of hot cleansing fluid, one of rinsing water, a current of hot air for drying, and of cold air for cooling.

**WASTEPAPER SALVAGE DRIVE.**—London's target of 5,000,000 volumes for its recent book recovery drive was exceeded and Mr. G. B. Hutchings, principal Director of Salvage & Recovery at the Ministry of Supply, has announced that more than 25,000,000 books had been collected in the nation-wide Book Recovery Campaign,

which was more than half way towards the 50,000,000 target for the year.

The wartime uses for paper for munitions is increasing daily, and the amount of paper being collected is many hundreds of tons below production needs. Although carelessness accounts for a great deal of loss of this raw material, the hoarding of paper of all kinds is equally responsible. Every individual should play his part in making available as much waste paper as possible for use as a raw material for munitions of war.

**BUTT-WELDING OF HIGH-SPEED STEEL.**—To assist users of high-speed steel in complying with the Cutting Tools No. 2 Order, covering the production of high-speed steel tools by butt-welding, etc., a list of standard blanks has been drawn up by the Machine Tool Control and will be the subject shortly of a British Standard Specification. The Controller of Jigs, Tools & Gauges has agreed to exempt from the provisions of the Cutting Tools No. 2 Order jobbers' drills; straight shank and mills; taper pin reamers; straight shank slot drills; and woodruff cutters. All these, in the sizes prescribed in the British Standard Specification, may be made in solid high-speed steel, if application is made to the Machine Tool Control, 35, Old Queen Street, S.W.1, for an exemption licence. The provisions of the Cutting Tools No. 2 Order apply to tools produced from all types of high-speed steel; and any firm requiring to make tools governed by the Order in solid high-speed steel must obtain from the Machine Tool Control an exemption licence.

## Loops and Bridging Work on the G.W.R.

### Some details of work effected by contractors on each side of a section of the main line

TOWARDS the end of September, 1942, work was begun on the construction of up and down goods loops on each side of a section of the main line, somewhere between Paddington and the West, to meet wartime needs. These loops, each  $2\frac{1}{2}$  miles long, have been completed recently under a contract with Sir Robert McAlpine & Sons (London) Ltd., and they were opened to traffic in March.

The contract works for these additional

interesting details of these phases of the work are therefore briefly recorded.

Alongside the main line, where the loops were to be constructed, was an important telegraph-pole route, which it would have been a somewhat lengthy and involved job to move to allow the loop to be laid with the standard clearance. Diversion of this loop was therefore decided on, and the track was laid at distances of from 11 ft. to 35 ft. 9 $\frac{1}{2}$  in. away

The original structure consisted of a single span of girders and jack arches, and the two additional 15 ft. 6 in. spans, one on each side of the main line, were constructed in reinforced concrete on brickfaced concrete abutments; the old abutments were rebuilt as piers in brickwork with concrete backing.

Road traffic over the bridge was maintained continuously during the operations, but each span was dealt with in two sections, so far as the superstructures were concerned, so that the road traffic would not be seriously disorganised. After closing half of the road, it was excavated for the full length of the superstructure to a depth below soffit level.



The extended bridge with new loops beneath the outer spans

tracks included earthworks, drainage, tracklaying, and ballasting, the extension of culverts, building platelayers' huts, and the construction of a signal box. The whole of the permanent way connections, however, were ordered and laid by the staff of the Divisional Engineer. In general, the main part of the work was straightforward, but the extension of an overbridge, the disposal of excavation, and the diversion from the standard clearances of one of the loops presented features out of the ordinary. The more

from the main line. Under this arrangement very few of the telegraph poles needed removal. The line of poles, carrying a considerable number of telegraph wires, is clearly shown in one of the accompanying illustrations.

In the section affected, the main line was crossed by a single-span overbridge and to accommodate the new loops, one on each side of the existing double track, a road embankment had to be excavated and the bridge extended at both ends to carry the roadway over the widened track.

Three piles were then cast *in situ* by the Cementation Co. Ltd., on the site of the new abutment, with an average penetration below road level into gravel of 28 ft.

Shuttering for the superstructure was then placed in position, and after fixing the reinforcement, the concrete deck slab was cast. Four stages were required for completing the bridge superstructures in this manner. The necessary road works, which included some minor raising of the

(Continued on page 24)



Above: Bridge extension in progress; completed with wall without coping, and finished deck slab with parapet. Dumping excavation is proceeding beneath the extension

Left: Three piles under half of the road to support one of the deck slabs. Temporary struts between piles and pier are also shown

### Concourse Views of Two Well-known Empire Railway Stations



*The concourse of Wellington New Station, New Zealand Government Railways. Work on the site began in 1933; the foundation stone was laid by the Duke of Gloucester on December 17, 1934; and the station, which is provided with all modern amenities, was opened by Viscount Galway, then Governor-General of New Zealand, on June 19, 1937*



*A section of the exhibition which was held recently in the concourse of Windsor Station, Montreal, Canadian Pacific Railway, to emphasise the need for "digging for victory" and the conservation of food; economy in the use of fuel and light; the saving of rubber; and other wartime measures. The British Ministries of Information, Food, Supply, and Fuel & Power, the National Savings Committee, and the Railway Executive Committee were among the bodies which contributed to the exhibition, which is now touring the C.P.R. system*



## RAILWAY NEWS SECTION

## PERSONAL

## L.M.S.R. APPOINTMENTS

The L.M.S.R. announces that Mr. Frank A. Pope has been appointed Chief Commercial Manager in place of Mr. Thos. E. Argile retired, and Mr. R. H. W. Bruce has been appointed Manager of the Northern Counties Committee at Belfast in place of Mr. Pope.

## L.N.E.R. APPOINTMENTS

The retirement is announced, as from June 30, of Mr. G. S. Begg, Passenger Manager, Scottish Area.

Mr. M. A. Cameron, Acting Assistant Goods Manager, Southern Area, is appointed Passenger Manager, Scottish Area.

Mr. J. Lorimer, Chief Assistant to the Passenger Manager, Scottish Area, is appointed Assistant Passenger Manager, Scottish Area.

Mr. J. A. Dunnage has announced to the Council of the Industrial Transport Association his decision to retire from the post of first National Secretary to that body.

Mr. H. Wilmot, Managing Director of Beyer, Peacock & Co. Ltd., who has been President of the London Branch of the Institute of Cost & Works Accountants for the past two years, has been elected President of the institute for its Silver Jubilee year.

We regret to record the death through enemy action of Mr. T. R. Seddon, formerly Traffic Manager, Gold Coast Government Railway.

Commander H. S. Whitworth, R.N.V.R., who for 30 years has been Principal Railway Transport Officer at the Admiralty, is making progress in hospital after a serious operation.

## INSTITUTE OF TRANSPORT COUNCIL

As no further nominations to fill the vacancies which will arise on the council at October 1, 1943, have been received, the President has declared the following to be elected: Messrs. R. P. Biddle, Docks & Marine Manager, Southern Railway (on national service); E. R. L. Fitzpayne, General Manager, Glasgow Corporation Transport; Brig.-Gen. Sir Osborne Mance, D.S.O., Director of Inland Waterways, Ministry of War Transport; Messrs. L. H. K. Neil, London City Manager, L.N.E.R.; G. S. Rider, District Goods & Passenger Manager, Bristol, L.M.S.R.; R. A. B. Smith, President of the Commercial Motor Users' Association; M. S. Speir, Chief Officer for Scotland, L.M.S.R.; A. B. B. Valentine, Commercial Officer, L.P.T.B.; W. Donaldson Wright, Divisional Road Haulage Officer, North Midland Region.

Mr. J. M. Leighton-Bailey, Outdoor Assistant to Superintendent of Operation, Southern Railway, has been elected an Associate Member.

Mr. F. A. Pope, Manager of the Northern Counties Committee, Belfast, who has been appointed Chief Commercial Manager, L.M.S.R., is 49 years of age and was educated at Leys School and joined the L.N.W.R. in 1910. During the last war he served in France from 1914 to 1916 and in the Salonica Force until 1919; he attained the rank of Major. He was mentioned in dispatches and was awarded the Greek Order of Merit and the White Eagle of Serbia. Mr. Pope was a member of the

effecting economy on Indian railways. He returned to the L.M.S.R. early in 1933, but went back to India again in October of that year. On his return from India in 1934, he was appointed General Assistant, Chief Operating Manager's Department, L.M.S.R., and in July, 1938, became Superintendent of Operation. In 1940 Mr. Pope became Colonel, Director of Railways, B.E.F., until the evacuation from France, when he returned to the L.M.S.R. He was mentioned in dispatches. In 1941, he was appointed Manager of the Northern Counties Committee at Belfast.



Mr. F. A. Pope

Appointed Chief Commercial Manager,  
L.M.S.R.

Inter-Allied Food and Transport Commission in reoccupied areas, and from 1919 to 1921 was on the staff of the Ministry of Transport. He returned to the L.N.W.R. service in 1921, and from then until 1925 served in the General Manager's office, first of the L.N.W.R. and then of the L.M.S.R. In the latter year he was appointed Divisional Superintendent of the Nigerian Railway in connection with the reorganisation on the divisional system, and subsequently acted as Superintendent of the Line for periods in 1927 and 1929. He returned to the L.M.S.R. in 1930, as Assistant to the Chief Officer for Labour and Establishment, and later became General Executive Assistant on Sir Josiah Stamp's Staff at Euston. In 1932 Mr. Pope's services were first lent to the Government of India as Chairman of a selected committee of Indian railway officers, to suggest methods of increasing efficiency and

Mr. W. Lampitt, Assistant to Goods Agent, Bristol, G.W.R., who has been appointed Outdoor Representative, Chief Goods Manager's Office (Working Department), Paddington, G.W.R., entered the company's service at Paddington Goods Station in July, 1907, and gained experience in the General Section there, before going to Brentford Docks, where he served in the Shipping and Inwards Accounts Sections. In May, 1908, he entered the Accounts Office of the District Goods Manager's Office, London; subsequently his duties took him to Evesham, in connection with all sections of goods working, and, in April, 1914, to Hayes & Harlington. From September of that year until March, 1919, he served with the Royal Fusiliers, in Africa and at Gallipoli; in the latter month he was invalided from the Army, and returned to Hayes, to the Outwards Accounts Section there. Later, he was transferred to the Accounts Office of the District Goods Manager's Office, London, before becoming Chief Clerk (Goods), West Ealing, in May, 1931. In the next year, Mr. Lampitt went to the Chief Goods Manager's Office (Working Department) as Outside Representative: in this capacity he dealt, among other matters, with the special working of traffic from the Channel Islands, and with the Southern Railway & L.M.S.R. Pooling Committee;

and he was in charge of arrangements for the Royal Agricultural Show at Windsor. In January, 1938, he was appointed Assistant to Goods Superintendent, Bristol. On the outbreak of war, in September, 1939, he was lent to the Ministry of Food, and served as Port Food Movement Officer (South-Western Area), and as Railway Food Movement Officer, dealing with the allocation and clearance of food from ships, and transport to its destination. He was a member of the Port Emergency Sub-Committee and Transportation Sub-Committee. In September, 1942, he was appointed to the Chief Goods Manager's Office, and became Liaison Officer to the U.S. Army, and Ministry of Food and Ministry of Supply Outside Representative.

The Melchett Medal of the Institute of Fuel is to be presented this year to Dr. E. S. Grumell in recognition of the outstanding

work in promoting the economical use of fuel, which he has done over a long period. Dr. Grumell has for many years been head of the coal research laboratories of Imperial Chemical Industries Limited, and the research and experimental work carried out by him has resulted in improving the design of many combustion appliances and, consequently, in the saving of large quantities of fuel.

Mr. G. S. Begg, Passenger Manager, Scottish Area, L.N.E.R., who has retired,



**Mr. G. S. Begg**

Passenger Manager, Scottish Area, L.N.E.R.  
1939-43

entered the service of the former North British Railway as a junior clerk at Peacock Cross Station and, after some years' experience at other stations, was transferred to the office of the Superintendent of the Line at Edinburgh. After being employed in various departments of that office including the new works, signalling, etc., sections, he was appointed Chief of the Train Working Section in July, 1909. On reorganisation of the office of the Superintendent of the

Line, in January, 1917, he was appointed Chief Clerk, and a year later was given the post of Indoor Assistant to the Operating Superintendent. In July, 1920, he was promoted District Traffic Superintendent, Carlisle, and in September, 1921, returned to Edinburgh on his appointment as District Operating Superintendent for the combined Central and Southern Sections. In June, 1924, Mr. Begg became Assistant to the General Manager, Scotland, L.N.E.R., from which position in July, 1930, he was appointed Passenger Manager, Southern Scottish Area. In January, 1939, he took over control of the whole Scottish Area of the L.N.E.R. as Passenger Manager. He was Chairman of the Railway Clearing House Superintendents' (Coaching Traffic) Conference during the year 1933.

We regret to record the death, as the result of an accident, on June 18, of Mr. C. H. Hills, who retired on May 31 from the position of Chief Assistant (Signals) in the Signal & Telegraph Engineer's Office, Southern Area, L.N.E.R. Mr. Hills entered the service of Saxby & Farmer Limited, where his father was Chief Draughtsman, in 1898, and rose to the position of Outdoor Superintendent. He served in the Royal Engineers in the last war and re-joined his firm in 1919. In that year he entered the Signal Department of the Great Eastern Railway, under the late Mr. W. H. Bird, the Signal Engineer, and remained with that line and the L.N.E.R. until his retirement. The funeral took place at Ruislip Parish Church on June 23 and was attended by Mr. J. Boot, President, Mr. R. F. Morkill, Vice-President, and several Past Presidents and Members of Council of the Institution of Railway Signal Engineers, of which Mr. Hills had been a Member since 1913 and Member of Council since 1935.

Mr. M. A. Cameron, Acting Assistant Goods Manager, Southern Area, L.N.E.R., who has been appointed to succeed Mr. G. S. Begg as Passenger Manager, Scottish Area, was born in Lucknow, India, in 1904. He was educated at St. Mary's School, Melrose, Fettes College, and at Edinburgh University where he took First Class Honours in Economics. He joined the L.N.E.R. in

1926 as a traffic apprentice, and commenced his training at Morningside Road Station, thence going on to Haymarket (Passenger), South Leith (Goods), and Aberdeen; he completed his training in England. In 1930 he entered the Road Transport Section of the Passenger Manager's Department in London, and subsequently became Head of the Pooling & Special Subjects Section. In 1935, Mr. Cameron was appointed Assistant London District Passenger Manager, and became District Passenger Manager, Leeds, two



**Mr. M. A. Cameron**

Appointed Passenger Manager, Scottish Area,  
L.N.E.R.

years later. He was promoted to the post of Assistant to the Passenger Manager, L.N.E.R., Southern Area, in 1939, and, again two years later, was appointed Acting Assistant Goods Manager, Southern Area, the post he now vacates for his new appointment. For the last three years Mr. Cameron has been a member of the Council of the Institute of Transport. He commanded the Home Guard Platoon at L.N.E.R. Headquarters and is keenly interested in staff training and education.



Photo]

[L.N.E.R. Magazine

**L.N.E.R. locomotive with coal train on Welwyn Viaduct**

## TRANSPORT SERVICES AND THE WAR—196

### Part-Time Women Car Cleaners

By reason of the difficulty of obtaining full-time workers, the London Passenger Transport Board is introducing part-time women workers as car cleaners; 30 have been engaged so far. They work on two shifts as follow:—

Early shift—9 a.m. to 1 p.m.  
Late shift—6 p.m. to 10 p.m.

Others will be taken on if necessary.

### London Traffic Lights

At 6 a.m. on June 20, more conspicuous road traffic light signals for the hours of daylight were brought into use for all traffic lights in the Metropolitan Police Area. The visible light is a half moon, obtained by the use of a conversion mask. About 20,000 are being used. The cross signal is still used during blackout hours. The alteration is made manually by police officers morning and night.

### Insurance of Motor Goods Vehicles

In March, 1943, insurers of motor goods vehicles agreed to continue and extend, without any general increase in rates, existing policies for motor goods vehicles while used within a group scheme, although the Emergency Powers (Road Vehicles & Drivers) Order, 1939, removed certain restrictions on "A," "B," and "C" licences under the Road & Rail Traffic Act, 1933. The same concession has been agreed to in respect of vehicles used for other purposes on a certificate by an officer of the Ministry of War Transport that such use is necessary (1) to deal with an emergency or (2) because there were no other vehicles available which were licensed and insured for haulage for reward. These certificates are issued by District Transport Officers and are not issued for: (1) Normal work for the Road Haulage Organisation of the Ministry; (2) Civil Defence work; (3) Use which could be put on a non-emergency footing. The insurers have now agreed that these arrangements shall continue in force until September 30, 1943.

### More Emergency Military Transport

Bus workers employed by the Central S.M.T. Co. Ltd. took part in an unofficial

stoppage on June 19. On that day, Army drivers and military vehicles were posted in the vicinity of all the company's depots before 5 a.m. and for three hours in the morning a plentiful transport service was maintained throughout the industrial belt of Lanarkshire and further afield. In only a few instances were workers engaged on essential services late for work, and even fewer lost a shift. The Army lorries were supplemented by vehicles supplied by private contractors. Several of the larger industrial works provided transport for their own employees.

### Important L.N.E.R. Main-Line Changes

To alleviate overcrowding on the London-Edinburgh route, which is used extensively by H.M. Forces, the L.N.E.R. has been authorised to restore temporarily a former mid-day express in each direction and to run nightly (except Saturdays) two trains which hitherto have been operated as permitted reliefs on Fridays only. All four trains are liable to withdrawal at short notice. The changes were introduced on Monday last, June 28. In the northbound direction a train leaves Kings Cross on weekdays at 12.45 p.m., calls at Grantham, York, Darlington, Newcastle, and Berwick, and reaches Edinburgh (Waverley) at 9.35 p.m. The corresponding southbound train leaves at 1.10 p.m., calls at the same stations, and reaches Kings Cross at 9.55 p.m.

Of the two trains now being run nightly (except Saturdays) one leaves Kings Cross at 10.5 p.m., calls at Grantham, York, and Newcastle, and arrives at Edinburgh (Waverley) at 6.50 a.m. The other leaves Edinburgh (Waverley) at 7.50 p.m., calls at Drem, Berwick, Newcastle, Durham, Darlington, York, Doncaster, Retford, Newark, Grantham, and Peterborough, and reaches Kings Cross at 6.10 a.m.

Other main line alterations are as follow: The 10.45 p.m. train nightly from Newcastle to Kings Cross now leaves 10 min. earlier; the 6.10 p.m. (Fridays only) Doncaster to Kings Cross leaves at 5.52 p.m.; the 8.20 p.m. Kings Cross to Edinburgh leaves Newcastle at 4.14 a.m. (except on Sunday mornings) and runs 7 min.

later; the 8.10 p.m. Berwick to Newcastle runs 10 min. earlier throughout; and the 1 p.m. (Saturdays only) Edinburgh (Waverley) to Berwick leaves 50 min. later.

### Transport for Harvest Workers

Arrangements for the conveyance of the large numbers of additional farm workers required for gathering in the harvest have been simplified by a Ministry of War Transport Order which allows the use of motor goods vehicles for this purpose without the issue of the public service vehicle permits and road service permits which are normally necessary. The Order, which became effective on June 21, will remain in force until November 30, 1943.

Motor vehicle insurers have agreed that the arrangements for insurance cover for the carriage of farm workers on motor goods vehicles shall again be effective during the 1943 harvesting season as they were during the corn harvest in 1942. Existing policies of motor goods vehicles normally cover the legal liability of the owner and driver towards passengers who are being carried by reason of, or in pursuance of, a contract of employment, provided that the vehicle is not being used for the carriage of passengers for hire or reward. In view, however, of the fact that some vehicles may be used for the carriage of passengers for hire or reward and the probability that some of the farm workers will not be under contract of employment and therefore will not be carried by reason of, or in pursuance of a contract of employment, the haulier should protect himself by covering his liability. Cover will normally be available at the rate of 10s. a vehicle for a period not exceeding 2 months, plus 5s. a vehicle for every month thereafter. Goods vehicle operators who are concerned with the carriage of farm workers in connection with harvest haulage should therefore communicate with their insurance office to ensure that their liability is covered.

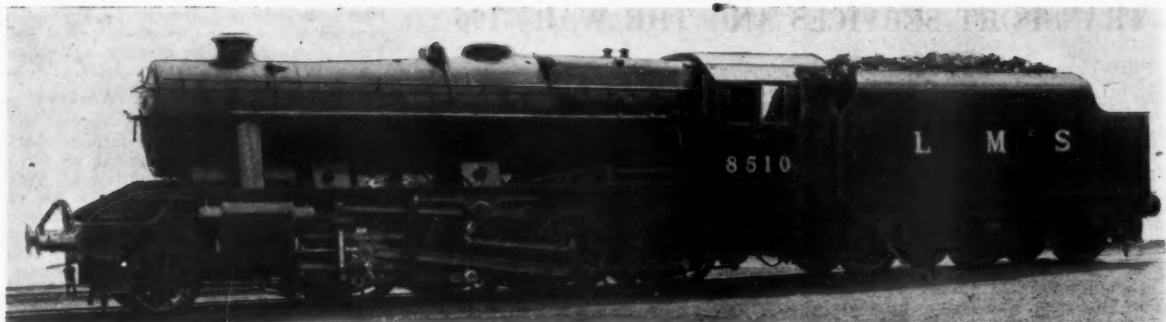
### London Bus Women's Uniform

The London women bus conductors are to wear blue slacks instead of the familiar grey with blue piping. The men's uniform is, of course, navy blue. No immediate change will be made but, as stocks of grey slacks are exhausted, the new colour will take its place. This will be navy blue with



American-built 2-8-0 austerity locomotive No. 1836 in service on the L.N.E.R. near Edinburgh. The view was taken last January





The first W.D. locomotive to be turned out at Doncaster Works, L.N.E.R. It will be noticed that it is destined for service on the L.M.S.R.

piping of the present shade. The grey dust-coats now being worn will remain the summer uniform, with a navy blue overcoat for winter. The uniform issued by the London Passenger Transport Board to its female staffs formed the subject of an editorial note in our June 18 issue, page 602.

#### Producer-Gas Buses

The total number of producer-gas buses in regular service in Great Britain on May 28 was 429. This includes vehicles converted before the introduction of the present conversion scheme by the Ministry of War Transport, but excludes training and experimental vehicles. The number of units despatched to operators of public service vehicles up to May 29 was 1,622. Before units can be placed in regular service, the vehicles, of course, require adaptation, and provision has to be made for servicing them. After the time interval required for these steps, the number of units at work should thus be quadrupled.

#### Travel to and from Ireland

Passengers by the steamship services between Liverpool and Belfast, and between Glasgow and Belfast, must be in possession of sailing tickets before the travel tickets can be issued. These arrangements operate from July 1 to August 31. Sailing tickets are obtainable free of charge from the offices of the Belfast Steamship Company in London, Liverpool, and Belfast, and of Burns-Laird Lines Limited in Glasgow. Applications should be made at least ten days before the sailing date proposed. Alternative date should be stated, and a stamped addressed envelope enclosed.

During the same period, passengers travelling by the Heysham-Belfast or Stranraer-Larne routes must also have sailing tickets. Information as to where to apply for sailing tickets for these routes may be obtained from the stations of the L.M.S.R.

#### Young German Engine Drivers

To overcome the shortage of trained locomotive drivers, Germany has formed a body of "young engine helpers," according to the German radio. They will begin their service as drivers after 18 months of specialised training, and become full locomotive drivers at the age of 23 or 24, after their training has been interrupted by labour service and military service.

#### German Sulphuric Acid Traffic

An Order of the German Chemical Control (*Reichsstelle Chemie*) which has been in force since May 25, limits to 100 km. (62 miles) the maximum distance over which sulphuric acid, of whatever type or concentration, may be conveyed by rail

or by road. Consignments of the *Schwefelsäure-Kontor* (the executive office of the Chemical Control) are excluded from this Order.

#### Restoring Stalingrad Railways

The *Soviet Monitor* of May 27 recorded that Leningrad railwaymen had dispatched their first train load of equipment and spare parts for the reconstruction of the Stalingrad railways. On the day after the train arrived in Stalingrad, a crane sent by the Leningrad workers was already in operation, loading fuel for locomotives. A mobile electric power station had also been assembled and was producing current for the local rail depot.

#### Water Transport to Relieve the Reichsbahn

A recent Order of the German Regional Traffic Management of the East (*Gebietsverkehrsleitung Ost*) suspended the conveyance of goods by railway between specified places within the districts of the Reichsbahn Divisional Managements of Königsberg, Posen, and Danzig, with the object of diverting the traffic to the inland waterways and/or to coastal shipping, so as to relieve the heavy pressure on the Reichsbahn. Certain categories of consignments are excepted, such as express goods, live-stock and perishable goods.

#### Indian Track and Equipment for Military Purposes

As the Central Standards Office for Indian Railways undertook responsibility for the supply of the Defence Department requirements of locomotives and rolling stock for war purposes in India and overseas, a War Section was created in the Central Standards Office in August, 1941, to undertake this work. The demands for locomotives and rolling stock for the Defence Department for overseas included more than 200 metre-gauge locomotives, 8,300 metre-gauge goods wagons, over 1,500 standard-gauge (4 ft. 8½ in.) goods wagons, standard-gauge and metre-gauge ambulance trains and miscellaneous coaching stock, and certain narrow-gauge locomotives and wagons. Requirements of the Defence Department for India included broad-gauge military cars and kitchen cars, and broad-gauge and metre-gauge ambulance trains. All metre-gauge locomotives had to be converted to oil fuel burning before despatch, and 70 per cent. of the metre-gauge and standard-gauge wagon stock was dismantled and packed for shipment in order to conserve shipping space. In addition, wagons had to be strengthened to carry heavy armoured fighting vehicles, and much time was devoted to ambulance train and other special vehicle layouts. Drawing office staff was consequently employed largely

on war work during the latter part of the financial year 1941-42, and the organisation of the supply and shipment of stock to meet Defence Department's needs severely taxed the resources of the office and necessitated a curtailment of its normal activities.

During the financial year ended March 31, 1942, there were further heavy demands for track for military operations. After supplying as much as possible by rolling new rails and by using railway stocks of second-hand material, the balance had to be met by dismantling branches as a last resort. The branches dismantled were selected in consultation with the Provincial Government or the Indian State concerned, after carefully considering the relative position of all branches in India with regard to their remunerativeness and other means of transport available in the area. The following lines were closed during 1941-42, besides the Raipur Forest Tramway belonging to the Government of the Central Provinces:—

Auhadpur to Balamau, East Indian Railway.  
Utraithi, Sultanpur to Zafarabad, East Indian Railway.  
Bhagalpur to Mandar Hill, East Indian Railway.  
Tinpahar to Rajmahal, East Indian Railway.  
Unao to Madhoganj, East Indian Railway.  
Fort Abbas to Kutal-Imara, North Western Railway (belonging to the Bahawalpur State).  
Rohtak to Gohana, North Western Railway.  
Joginder Nagar to Nagrota (Kangra Valley Railway), North Western Railway.  
Bobbili to Salur, Bengal Nagpur Railway.  
Vasad to Kathana, Bombay, Baroda & Central India Railway.  
Madura to Bodinayakanur, South Indian Railway.

#### Balkan Luggage Traffic

In accordance with the provisions of an agreement recently concluded between the Roumanian State Railways on the one hand and Croatia, Hungary, Switzerland, Slovakia, Italy, and Germany on the other, the more important railway stations in Roumania are now able to forward luggage direct to the principal stations of the partner countries. The minimum weight of a piece of luggage is fixed at 22 lb.; and the maximum at 220 lb. Conveyance is effected by passenger train. Luggage rates to destination are payable in Leis.

#### Dutch Trams in Wartime

The last financial period of the Geldern'sche Tramweg Maatschappij, of Doetinchem, ending December 31, 1942, and covering eight months, showed unfavourable results and resulted in an operating loss. In the company's existence of 62 years, no dividend was paid for the first time in respect of the 1941-1942 year. The company owns and operates an extensive tram system between Doetinchem and Arnhem, Arnhem and Terborg, Doetinchem and Dieren, and Dieren and Terborg; as well as between Zutphen on the one hand and Doetinchem, Terborg, and Brummen on the other. The region concerned is in Central Holland.

## New Zealand Locomotive Costs and Performance

The statement for the year ended March 31, 1942, of the Minister of Railways, Dominion of New Zealand, shows that, although locomotive running costs tended to increase on the whole as compared with the previous year, and with that ended March 31, 1939, running costs of individual classes of engines tended to decrease. Thus, total running costs for the North Island main line and branches for the period 1941-42 were £1,841,195, against £1,719,720 for 1940-41, and £1,561,828 for 1938-39. On the other hand, running costs of locomotives of the "Ab" class in the North Island had decreased in 1941-42 to £384,747 from £434,981 in 1938-39, although a slight increase was shown over the 1940-41 figure of £371,264. The decrease as between 1941-42 and the last full pre-war year is shown by the relative statements to have been accounted for, at least in part, by the fact that the average mileage run by a locomotive of the "Ab" class was less in the former period than in the latter. Again, for example, locomotives of the "K" class 4-8-4 type (which are among the largest built for the Railways Department) averaged each 44,450 miles of running in the North Island in 1941-42, compared with 52,701 miles in 1938-39; total running costs of these engines in the North Island were £196,511 in the former period, and £214,057 in the latter: the number in service in the island was 30 in each period. In Table I is shown the total of locomotive running costs for various classes in the North Island for the periods 1938-39, 1940-41, and 1941-42.

The cost a locomotive-mile over the North Island main line and branches rose from 35.20d. in 1938-39 to 39.99d. in 1941-42; and over the South Island main line and branches from 32.16d. to 34.80d. In the case of electric locomotives, total costs a locomotive-mile of the five engines of the "Eo" class had decreased from 77.01d. to 72.33d., and those of the six locomotives of the "Ec" class had increased from 24.48d. to 39.38d., in 1938-39 and 1941-42 respectively. Costs a mile for diesel railcars rose sharply from 8.79d. to 20.11d. In Table II are shown the costs a locomotive-mile for 1938-39, 1940-41, and 1941-42 for the North and South Island main lines and branches, for two classes of electric locomotives, and for diesel railcars.

With the main classes of locomotives of the New Zealand Government Railways, a tendency was shown, as already stated, for a lower mileage on the average to be attained by individual engines in 1941-42 than in 1938-39, although in some cases the figures for 1941-42 exceeded those of 1940-41. In Table III are shown the average mileages for the three periods of locomotives of classes "Ab", "J" (4-8-2); "K" and "Ka" (4-8-4); and "Ww."

U.S.A. RAILWAY CAPITAL OUTLAY IN 1942.—In capital expenditure on new and improved equipment, structures, and handling facilities, the high level of \$543,021,000 reached in the U.S.A. in 1941 was not quite repeated in 1942, when the total was \$534,897,000. Capital expenditure in both these years, however, far exceeded that of any year since 1930, when the aggregate was \$872,608,000. There was an element of tragedy about the 1930 expenditure, as it followed the peak traffic year of 1929,

TABLE I—NORTH ISLAND LOCOMOTIVE RUNNING COSTS

Class	Year	Number of locos.	Cost				Total	Cost a loco.- mile	Days in steam	Average days in steam a locomotive	
			Repairs	Running							
				Wages, material, and overhead	Stores	Fuel	Wages				
Ab	...	...	87	114,971	7,479	183,505	129,026	434,981	24.71	24,790	285
	1938-39	87	114,971	7,479	183,505	129,026	434,981	24.71	24,790	285	
	1940-41	87	80,126	7,050	169,833	114,255	371,264	27.01	23,864	274	
	1941-42	87	97,718	7,438	165,057	114,534	384,747	29.09	23,289	268	
K	...	...	30	56,500	2,774	109,161	45,622	214,057	32.49	8,505	284
	1938-39	30	56,500	2,774	109,161	45,622	214,057	32.49	8,505	284	
	1940-41	30	64,422	2,252	89,641	39,902	196,217	38.05	7,415	247	
	1941-42	30	52,011	2,843	96,348	45,309	196,511	35.37	8,000	267	
Ww	...	...	47	47,549	2,214	51,910	51,215	152,888	33.91	11,913	253
	1938-39	47	47,549	2,214	51,910	51,215	152,888	33.91	11,913	253	
	1940-41	51	40,140	2,789	54,390	56,331	153,650	34.06	12,525	245	
	1941-42	53	52,608	2,890	54,623	58,503	168,624	38.02	12,276	232	

TABLE II—COSTS A LOCOMOTIVE-MILE

		Repairs running				Total	Depreciation	Water	Conversions and alterations	General charges	Total cost a loco.-mile
		Wages, material and over-head	Stores	Fuel	Wages						
North Island main line and branches	1938-39	d. 7.90	d. 0.47	d. 12.02	d. 9.11	d. 29.50	d. 1.67	d. 0.40	d. 0.37	d. 3.26	d. 35.20
	1940-41	7.39	0.55	13.96	9.64	31.54	2.21	0.43	0.36	3.70	38.24
	1941-42	8.35	0.58	14.04	9.82	32.79	2.27	0.42	0.41	4.10	39.99
South Island main line and branches	1938-39	8.80	0.50	7.65	9.37	26.32	1.77	0.27	0.40	3.40	32.16
	1940-41	9.71	0.60	8.75	9.78	28.84	1.83	0.39	0.45	3.60	35.11
	1941-42	9.59	0.60	8.44	9.89	28.52	1.87	0.40	0.51	3.50	34.80
Electric locos. Eo	1938-39	28.71	0.33	35.94	4.96	69.94	4.95			2.12	77.01
	1940-41	22.63	0.49	35.55	5.63	64.30	15.29			3.04	82.64
	1941-42	18.60	0.52	20.84	4.94	44.90	15.43			12.00	72.33
Electric locos. Ec	1938-39	6.54	0.34	8.12	5.19	20.19	3.13			1.16	24.48
	1940-41	15.46	0.42	8.24	5.45	29.57	5.72			3.05	38.34
	1941-42	12.75	0.67	8.36	5.50	27.28	5.65			6.45	39.38
Diesel railcars	1938-39	2.82	0.32	0.52	2.73	6.39	2.40				8.79
	1940-41	5.01	0.60	1.43	2.60	9.64	8.91				18.55
	1941-42	5.72	0.65	1.78	2.61	10.76	9.27			0.08	20.11

TABLE III—AVERAGE MILEAGE A LOCOMOTIVE

Class	Year	North Island		South Island	
		Number of locos.	Average mileage a locomotive	Number of locos.	Average mileage a locomotive
Ab	1938-39	87	48,555	54	43,819
	1940-41	87	37,925	54	39,676
	1941-42	87	36,489	54	40,324
J	1938-39	30	46,277	10	38,704
	1940-41	30	47,972	10	40,495
	1941-42	30			
K	1938-39	30	52,701		
	1940-41	30	41,250		
	1941-42	30	44,450		
Ka	1938-39	20	36,937		
	1940-41	25	41,123		
	1941-42				
Ww	1938-39	47	23,021		
	1940-41	51	21,229		
	1941-42	53	20,084		

and was undertaken when the sharp decline from the peak had just begun to set in. By 1931 capital expenditure had slumped to \$361,912,000; by 1932 to \$167,194,000; and by 1933 to no more than \$103,947,000. Thence the figure has fluctuated to \$509,793,000 in 1937, and to \$226,937,000 in the next year; but from \$262,029,000 in 1939 it rose sharply to the 1941 peak. Among the major increases in capital expenditure from 1941 to 1942, locomotives accounted for a rise from

\$80,607,000 to \$113,834,000; but the cost of passenger stock dropped from \$29,544,000 to \$24,075,000, and of wagons from \$245,713,000 to \$201,112,000. Additional sidings required an increase from \$25,374,000 to \$43,330,000; and additional running tracks, from \$3,781,000 to \$6,235,000. Of the total capital expenditure in 1942, \$349,734,000 was on locomotives, passenger and freight stock, and other equipment; and \$185,523,000 on improvements to tracks and structures.

## Beyer Peacock & Co. Ltd. Annual Meeting

The annual general meeting of Beyer, Peacock & Co. Ltd. was held at the Midland Hotel, Manchester, on June 29. Captain Hugh Vivian, M.I.Mech.E., Chairman of the company, presided.

The Chairman said that before proceeding with the formal business of the meeting, it was his sad duty to inform shareholders that his colleague, Mr. Samuel Jackson, had died very suddenly on June 7. The whole of his life had been spent in the service of the company and he had achieved a renown as a locomotive engineer which had been equalled by few. He would always be remembered for his brilliant work in the development of the Beyer-Garratt locomotive, now known throughout the world. Last year he had been invited to join the board of the company and had he survived shareholders would have been asked to re-elect him that day. By his passing the company lost a man of outstanding loyalty and integrity and his colleagues a trusted friend.

The Chairman, in the course of his statement circulated to shareholders with the report and accounts, said that the balance sheet figures needed little explanation. Stocks and work in progress, debtors, and creditors were all higher than last year, but the net position did not call for comment. The company's works remained active, subject to the changing requirements of Departments of His Majesty's Government. It was self-evident that heavy and medium engineering works had to be devoted to the production of items of national importance. It was also clear that transport was as fundamental to the needs of war as to the requirements of peace, and members of the company would be glad to

know that locomotives delivered to customers all over the world were doing war work of vital importance in supplying the transportation needs of the United Nations.

The assets of the company had been maintained as far as these strenuous times permitted, and where this had not been possible reserves had been created with a view to repair, overhaul, or replacement at the end of hostilities. The Civil Defence organisations of the company continued to work smoothly and efficiently, and they were all indebted to the service so cheerfully undertaken by members of the various branches.

He would not be expected to attempt any review of prospects. All he could say was that the organisation was in a position to meet whatever requirements might arise during the war, and to face the undoubtedly difficult problems which lay ahead in the early days of peace. War brought with it change and disturbance from many angles, and he was indebted to his colleagues and the staff and workpeople throughout the whole organisation for their support and devotion to duty. There was reason to believe that the efforts made had been appreciated by more than one official department.

## LOOPS AND BRIDGING WORK ON THE G.W.R.

(Concluded from page 17)

approaches to the bridge, were carried out by the local County Council for the contractors.

At this stage the reinforced concrete slabs of the side spans were carried by the piles and the original abutments, allowing the material under the slabs to be removed down to formation level to permit the new piers and abutment works

to proceed simultaneously. Some trouble was experienced with the construction of the piers, as the old walls were thin and the backing bricks of a poor quality, but all the difficulties were successfully overcome. Some pumping was necessary, however, as the work proceeded, because of heavy rains which raised the ground-water level.

In dealing with earthworks, restrictions on the width of additional land to be acquired for one loop necessitated the spreading of surplus excavations in three main tips, and both Decauville track and dumpers were used to dispose of this surplus. The second loop was laid on the company's land mainly as a surface railway, and a fair balance was nearly attained between excavation in cuttings and filling in embankments.

For the information contained in this article, and for the illustrations which accompany it, we are indebted to *The Great Western Railway Magazine*.

BRITISH TIMKEN LIMITED.—At the 23rd annual general meeting of this company, Mr. John Pascoe, Deputy-Chairman, said that the increase in profit for 1942 was insignificant compared with the increase in turnover. The company's earnings did not reach its excess profits standard, and he expressed the hope that when the Chancellor of the Exchequer came to ease the burden of E.P.T. to assist manufacturers in meeting terminal losses, any concessions might be extended so as to cover the case of a company such as this, which, operating on a scale far exceeding anything approached in pre-war days, nevertheless found its E.P.T. standard quite out of reach. They looked back on almost four years during which the whole resources of the company, both human and material, had been extended to the utmost.

## Concrete Sleeper Blocks on the L.M.S.R.

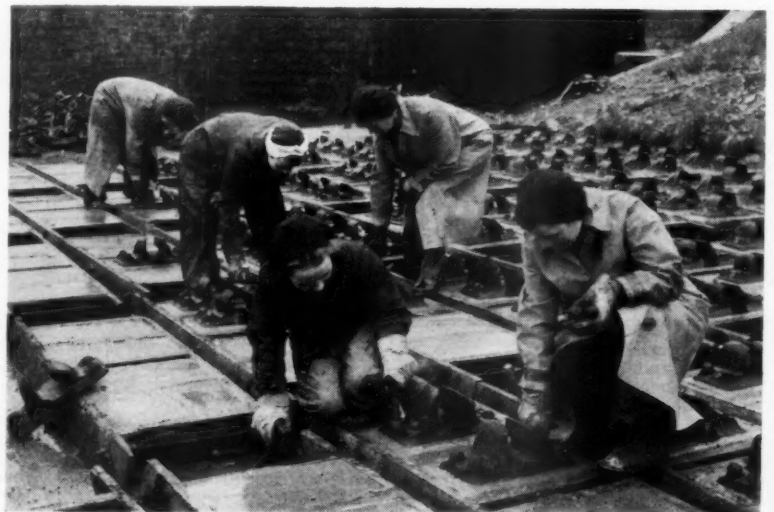
The expansion of industry throughout the country has necessitated the construction of sidings for lines carrying slow moving traffic at newly-established works and at places where the existing sidings no longer are capable of dealing with the traffic. To meet the demand for sleepers which thus has arisen, a simple type of concrete sleeper block is being produced by the L.M.S.R. in Scotland, which has proved to be quite serviceable.

The blocks consist of plain un-reinforced concrete measuring 23 in. x 13 in. x 5½ in., and are moulded in sets of six. While the concrete is still soft the chairs are placed in position and the spikes are pressed through the chair-holes into the concrete. By this means the chairs are fixed firmly, and after a few days the blocks are ready for use. The moulds are taken away after about twelve hours. To maintain the gauge, second-hand wooden sleepers are used between every two pairs of concrete blocks; or, in very lightly-worked sidings, between every three pairs of blocks. Wooden sleepers are used at rail joints.

The concrete sleeper blocks are made entirely by women, who have been doing so since June, 1941. At Mossend, where the manufacture of the blocks is carried on, there are ten women who work under their own forewoman. None of them had had previous experience of this kind of work. The forewoman, Mrs. Sadie McKendra, was previously employed as

an insurance agent; and, of the others, one was employed in a hosiery factory, and another in domestic service. The work is carried on in the open, and the women express themselves as liking the job, by which they say that they have benefited in health. They can manufacture approximately 1,000 blocks a week.

So that no one has the hardest part of the job all the time, the women change over their tasks each week. Some load the stones and cement into the hopper. One works the mixer; some take the concrete away in barrows; others fill the sleeper moulds; and others fix the cast-iron chairs to the moulded blocks.



Women employees of the L.M.S.R. fixing the cast-iron chairs to moulded concrete sleeper blocks



## Parliamentary Notes

### Grand Union Canal Bill

The Grand Union Canal Bill, as amended, passed the Report stage in the House of Commons on June 22.

## Questions in Parliament

### Reservation of Seats

Mr. Robert Taylor (Morpeth—Lab.) on June 23 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware of the indignation felt by the majority of first class passengers travelling from Kings Cross, at the practice of seats being claimed on behalf of intending travellers before their arrival at the station; and whether he proposed to stop this practice.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary, Ministry of War Transport): The Minister of War Transport gave instructions to the railway companies some time ago that no hotel or railway porter should be allowed to reserve a seat in any railway carriage unless the intending passenger was present when the reservation was made. In view of Mr. Taylor's representations, I am bringing the matter again to the attention of the Railway Executive Committee, and I have arranged for a special reminder to be issued to the staff at Kings Cross.

Mr. Taylor: Is the Parliamentary Secretary aware that that warning has been totally disregarded, and that only on Friday it appeared that notice was being taken, because one of the hotel porters said, "I have got my passenger with the case today?"

Mr. Noel-Baker: I am very glad that the warning has now been effective.

Mr. W. Foster (Wigan—Lab.): Is the Parliamentary Secretary not aware that porters at railway stations take the luggage of first class passengers and rush into first class compartments to claim seats, and that there is a general scramble to get seats in the compartment?

Mr. Noel-Baker: I cannot prevent passengers from engaging porters.

Sir Herbert Williams (South Croydon—C.): Is it not a fact that porters will do that for anybody for a reasonable tip?

Mr. Taylor: Is it right that porters should claim seats before passengers are there?

Mr. Noel-Baker: No, Sir. That is contrary to the instructions.

### Rail Transport of Flowers

Sir Leonard Lyle (Bournemouth—C.) on June 23 asked the Parliamentary Secretary to the Ministry of War Transport what warning he had issued to the National Farmers' Union on the subject of flower transport in the coming winter to avoid confusion on the subject.

Mr. Noel-Baker stated in a written answer: On May 11 I warned the National Farmers' Union, and other bodies interested in the growing and marketing of flowers, that it might be necessary next winter to re-impose the prohibition on the transport of flowers by rail. I told them that whether this will, in fact, be necessary, will depend on two things; first, the general transport position which we could not now foresee; and second, the efficacy of the arrangements made to ensure that flowers shall not impede the movement of food-stuffs or other essential goods. I told them that in any case, only a small quantity of flowers could be carried; and I suggested that growers in each area should devise a

quota system, and that this quota system should be flexible enough to allow the tonnage of flowers tendered to be adjusted at short notice to the transport space available. I understand that growers in the principal areas are taking action to this end.

### Accommodation for Service Personnel

Mr. Donald Scott (Wansbeck—C.) on June 23 asked the Parliamentary Secretary to the Ministry of War Transport whether he would consider placing a luggage van on all long-distance trains for the sole use of service personnel in which they could place their equipment under the care of a guard and thus relieve the present congestion in compartments and corridors.

Mr. Noel-Baker stated in a written answer: On almost all long-distance trains there is already the maximum number of coaches which the locomotives can pull. An additional luggage van could, therefore, only be provided if a passenger coach were taken off. I regret that the result would thus be to increase, rather than to diminish the present congestion.

### Statutory Rules and Orders

Mr. G. Gledhill (Halifax—C.) on June 23 asked the Parliamentary Secretary to the Ministry of War Transport, on what date the Railways (Transport of Green Onions) Order (S.R. & O., 759, of 1943), which was signed on May 24 and came into operation on May 28, was available to the public.

Mr. Noel-Baker in a written answer stated: The Transport of Green Onions Direction, 1943, was on sale at the Stationery Office on May 31.

Mr. G. Gledhill on June 23 also asked the Parliamentary Secretary to the Ministry of War Transport why the Railways (Transport of Potatoes) Direction No. 2, Order of 1943, was brought into operation on the day on which it was signed, and therefore before its contents could be known to those affected.

Mr. Noel-Baker wrote in reply: The Railways (Transport of Potatoes) Direction (No. 2) of 1943, revoked an earlier Direction which controlled the movement of seed potatoes during the recent winter season. This earlier Direction was complementary to an Order made by the Ministry of Food. As this Order lapsed on April 13 and the movement of seed potatoes had ended, the Direction to which Mr. Gledhill refers had no further significance and no public inconvenience could be caused by the fact that it became operative on the day it was signed.

### London Bus Service

Mr. R. W. Sorensen (Leyton West—Lab.) on June 2 asked the Parliamentary Secretary to the Ministry of War Transport if notices could be affixed at London Passenger Transport Board stopping points, at least in the Greater London area, stating frequency of service between first and last services; and the times of local departure of the less frequent services.

Mr. Noel-Baker: For services on which there are four buses an hour or less, timetables are already posted at the principal stopping places. The London Passenger Transport Board is also preparing notices showing the times of the first and last buses on other services. I will send Mr. Sorensen further details of the board's proposals.

### Motor Roads in Rural Areas

Wing-Commander A. W. H. James (Wellingborough—C.) on June 23 asked the Parliamentary Secretary to the Ministry of War Transport whether he would give an assurance that no decision would be

taken respecting the planning of motor ways in rural areas without previous affirmation by the House.

Mr. Noel-Baker: The construction of new roads, whether they are to be reserved for motor vehicles or not, requires legislation. No new roads can, therefore, be made, unless Parliament has first agreed.

Wing-Commander James: Could we have an assurance that this highly contentious point, so far as rural areas is concerned, will not occupy the time and resources of the Ministry until the whole question can be discussed?

Mr. Noel-Baker: I would not like to give Wing-Commander James the assurance that no planning will be undertaken in the Ministry before the matter is brought to Parliament.

Mr. R. De La Bere (Evesham—C.): Is the Parliamentary Secretary aware that far too much planning is introduced before Parliament has been consulted at all?

There was no reply.

### Road Signs in Rural Areas

Wing-Commander N. J. Hulbert (Stockport—C.) on June 23 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware that signposts were being replaced in such a manner as to make them invisible to motor cars with dimmed lights; and if he would issue instructions to local authorities on this matter.

Mr. Noel-Baker: I am informed that, as a general rule, road signs are being replaced in the positions and on the posts which they occupied when they were taken down. Before the signposts were removed, highway authorities had already been advised to lower signs in rural areas so that they fell within the beam of light from a masked headlamp, wherever this was practicable. I will remind the highway authorities of this advice, and I am grateful to Wing-Commander Hulbert for calling attention to the matter.

### West African Railway Workers

Mr. R. W. Sorensen (West Leyton—Lab.) on June 23 asked the Secretary of State for the Colonies, whether he had received or would secure a further report on conditions of service, respectively, for British and African railway workers in West Africa; and if substantial improvements had now been established?

Colonel Oliver Stanley (Secretary of State for the Colonies) stated in a written answer: There have been many improvements in conditions of service for the African staff on the railways in West Africa. A special Railway Welfare Officer has been appointed in Nigeria and trade unionism is making progress on increasingly satisfactory lines. I am not aware of there being any special grounds for discontent with their conditions of service on the part of the European personnel. In the circumstances, I do not consider that it is necessary to call for any special report at the present time, but Mr. Sorensen may rest assured that the position is being carefully watched.

### Trans-Canada Air Lines

Mr. A. R. L. F. Tree (Harborough—C.) on June 22 asked the Secretary of State for Dominion Affairs whether he had any official information with regard to the ownership of Trans-Canada Air Lines.

Mr. P. V. Emrys-Evans (Under-Secretary of State for Dominion Affairs): Yes, Sir. As recently stated by the Canadian Minister of Munitions & Supply, Trans-Canada Air Lines is owned wholly by the Government of Canada.

## Notes and News

**Cataluna Railway Capital Increase.**

—A private railway company, the Ferrocarriles de Cataluna, is increasing its capital from 12,000,000 pesetas to 20,000,000 pesetas, according to German reports. The line is 26 miles long.

**Indian Government to Buy Three More Railways?**—Reports are current in India that a proposal is under examination by the Finance Member of the Indian Government to purchase the Madras & Southern Mahratta, the Bengal Nagpur, and the South Indian Railways.

**San Paulo Railway Rate Increase.**

The directors of the San Paulo (Brazilian) Railway Co. Ltd. announce that the petition submitted last December for increased traffic rates to assist in meeting the enhanced cost of fuel and materials and higher wages has been granted to take effect from July 5.

**South Manchuria Railway.**—The Official German News Agency reports from Hsinking that the South Manchuria Railway is transferring its head office from Dairen to Hsinking, as part of its administrative reorganisation. At the same time the general administration at Mukden is being dissolved.

**Coconut Oil as Fuel.**—The use of coconut oil as fuel for diesel engines has been tried recently in Ceylon. On an 18-h.p. Lister diesel engine commercial coconut oil, refined coconut oil, and mixtures of coconut oil and kerosene, respectively, were used; and 100 hr. of engine-running are said successfully to have been completed.

**Local Innsbruck Railways.**—The Strubaitalbahn A.G., of Innsbruck, owning the 11-mile Innsbruck to Fulpmes railway, reduced its share capital from RM. 1,970,400 to RM. 1,931,200 early in April by withdrawal of shares. It owns an electrically-operated line worked by the Innsbrucker Verkehrsbetriebs A.G., which also operates the Solbad Hall to Berg Isel and Berg Isel to Igls electric railways. Solbad Hall is 5 miles to the east of Innsbruck, on the Innsbruck-Salzburg main line.

**New Danube Bridge Project.**—It is reported that plans for the construction of a new Danube bridge—to be one of the largest in Europe—between Giurgevo (Roumania) and Russe (Bulgaria) were approved by a mixed Bulgarian-Roumanian Commission on June 20. The contract will be given to a German construction firm. The bridge will carry railway lines, and will have separate tracks for motor traffic and pedestrians. Reference to the scheme was made in our June 4 issue (page 550).

**The Turkish Earthquake.**—Several thousands of persons are believed to have been killed as the result of an earthquake in Turkey on June 20. The centre of the damage was Adapazar, a town on a branch from the Haidar Pacha to Ankara main line. The railway station at Adapazar is stated to have been among the buildings to be destroyed. So far as is known, the railway service on the main line was not interrupted.

**Manchurian Frontier Traffic.**

According to recently-issued Manchurian statistics, 31,000 passengers have passed through the Soviet-Manchuria railway frontier station of Manchouli since the beginning of 1934. Of these 17,000 travelled westward. Among the 45 nations represented in this traffic, the largest contingent was formed by Germans (12,000). Soviet citizens ranked second (4,000), British third (3,330), and Japanese fourth,

with the same number. Americans totalled 1,200, Manchurian nationals 800, and Italians 300.

**Sierra Leone Railway.**—A technical assistant to the Chief Engineer is wanted for the Sierra Leone Railway. Details of qualifications and terms of service are given in our Official Notices on page 27.

**Change of Address.**—The Alfloc water treatment service of I.C.I. (Alkali) Limited has moved to 4, Cromwell Place, South Kensington, London, S.W.7. The telephone number is Kensington 7231 and the telegraphic address Alfloc, Southkens, London.

**American Train Derailed by Aeroplane Crash.**—It is reported from New York that two army aeroplanes which came into collision in the air recently, burst into flames, and one of them fell in front of a passenger train between Worcester and Boston; the engine and five coaches were derailed. Two coaches caught fire, but none of the 150 passengers was hurt.

**Rail and Road Interavailability.**—Despite war conditions, the bus companies associated with the Southern Railway continue to issue return tickets interavailable between rail or road for the return journey. During 1942, on the Hants & Dorset Motor Services Limited, no fewer than 67,942 passengers availed themselves of this facility, compared with 9,218 in 1938. The figure for last year includes a large number of workers, as workmen's tickets are embraced in the arrangement.

**Quicktho (1928) Limited.**—For the year ended January 31, 1943, the profit from trading and income from investments amounted to £55,026. After provision for income tax, E.P.T., and depreciation, the net profit was £7,784 which, together with £3,356 brought forward, makes £11,140. The dividend of 1d. a share, equivalent to 4½ per cent., is the same; £2,000 is transferred to general reserve and £4,000 to taxation reserve, leaving £2,536 to be carried forward. The company is entirely engaged on work of national importance, which includes manufacture of its usual products.

**Southdown Motor Services Limited.**

—A gross revenue of £1,471,157 (£1,369,573) for the year to March 31, 1943, was secured by this company, which is controlled jointly by the Southern Railway Company and B.E.T. Omnibus Services Limited. After deducting all items chargeable against revenue, including operating and maintenance expenses £672,720 (£640,331), Roads Act duties, rates, and taxes £603,259 (£544,738), depreciation and renewals reserves £104,019 (£104,247), there remains a profit of £78,582 (£58,778), to which must be added £26,182 (£42,404) brought in, making £104,764 (£101,182). The dividend for the year is again 10 per cent., absorbing £75,000, and £29,764 is carried forward.

**S.R. Extension of Time Application.**

The Southern Railway Company is applying to the Minister of War Transport for an Order under the Special Enactments (Extension of Time) Act, 1940, extending by three years from October 1, 1943, the time now limited by the Southern Railway (Extension of Time) Order, 1940:—(1) for the completion of (a) Railways Nos. 3, 4, 5, and 6, and Widenings Nos. 2, 3, 4, and 5 authorised by the London, Brighton & South Coast Railway Act, 1903, (b) the railway authorised by the Southern Railway Act, 1930, and (c) the railway (No. 1) authorised by the Southern Railway Act, 1935; (2) for the acquisition of lands (a) in Folkestone, Hawkinge, Capel-le-Ferne, and Hougham Without required for the devia-

tion railway between Folkestone and Dover authorised by the Southern Railway Act, 1934, and (b) in Hougham Without authorised to be acquired by Section 22 of the Act of 1934.

**David Brown & Sons (Huddersfield) Ltd.**—In the report for the year to September 30, 1942, it is stated that the profit (including income from investments, miscellaneous credits, etc.), after charging depreciation was £564,649; add £290,482 brought forward, making £855,131; deduct income tax and E.P.T. £484,870, preference dividends £15,035, and £100,000 provision for contingencies, leaving £259,226. In-

## British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices	
			June 25, 1943	Rise/Fall
G.W.R.				
Cons. Ord. ...	58	39	61½	—
5% Con. Pref. ...	115½	105½	113	— ½
5% Red. Pref. (1950) ...	109½	103½	108	—
5% Rt. Charge ...	132½	123½	127½	—
5% Cons. Guar. ...	130½	121½	124½	—
4% Deb. ...	117	105	109½	—
4% Deb. ...	118	108	111½	—
4% Deb. ...	125	113	119½	—
5% Deb. ...	137	127	131	—
2½ Deb. ...	77	70	76	—
L.M.S.R.				
Ord. ...	28½	16½	32½	—
4% Pref. (1923) ...	62½	50½	62½	—
4% Pref. ...	76½	67½	76	—
5% Red. Pref. (1955) ...	103½	94½	103½	—
4% Guar. ...	104½	97½	100	—
4% Deb. ...	108½	101½	104	—
5% Red. Deb. (1952) ...	111	107½	109½	—
L.N.E.R.				
5% Pref. Ord. ...	9½	2½	10½	—
Def. Ord. ...	5	1½	4½	—
4% First. Pref. ...	62	49½	62½	—
4% Second Pref. ...	32½	18½	34½	—
5% Red. Pref. (1955) ...	95½	79	97½	—
4% First Guar. ...	98	88	97½	—
4% Second Guar. ...	90	78	89½	—
3% Deb. ...	85	76	79	—
4% Deb. ...	106½	100½	102½	—
5% Red. Deb. (1947) ...	106	103	104	—
4½ Sinking Fund Red. Deb. ...	106	102½	105½	—
SOUTHERN				
Pref. Ord. ...	77	61½	75	—
Def. Ord. ...	23½	14½	24½	—
5% Pref. ...	112½	104	111½	—
5% Red. Pref. (1964) ...	110½	105½	112½	—
5% Guar. Pref. ...	131	121½	124½	—
5% Red. Guar. Pref. (1957) ...	115½	109½	114½	—
4% Deb. ...	116	104½	107	—
5% Deb. ...	134	125½	129½	—
4% Red. Deb. (1962-67) ...	110½	106	107½	—
4% Red. Deb. (1970-80) ...	111	106½	107½	—
FORTH BRIDGE				
4% Deb. ...	109½	108	106½	—
4% Guar. ...	105½	100	104½	—
L.P.T.B.				
4½ "A" ...	122½	111	116½	—
5% "A" ...	131½	122	126½	—
3% Guar. (1967-72) ...	95½	97½	99	—
5% "B" ...	121	111½	116½	—
"C" ...	56½	38	61½	—
MERSEY				
Ord. ...	27½	20½	31	—
3% Perp. Pref. ...	61½	56½	61	—
4% Perp. Deb. ...	102½	99½	104	—
3% Perp. Deb. ...	80½	76	79	—
IRELAND				
BELFAST & C.D.				
Ord. ...	9	4	9	—
G. NORTHERN				
Ord. ...	29½	12½	18	+ 1
G. SOUTHERN				
Ord. ...	25	10	10	—
Pref. ...	29	12½	14	—
Guar. ...	53	35½	28½	— ½
Deb. ...	71½	55½	53	— ½

§ ex-dividend



## OFFICIAL NOTICES

## South Africa

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## Overseas Employment—Sierra Leone

**OVERSEAS EMPLOYMENT.**—Technical Assistant to the Chief Engineer required by the Sierra Leone Railway for one tour of 12 to 24 months or the duration of the war, whichever is the shorter period. Salary £475-£25-£600-£30-£840 a year. Free passages and quarters. Candidates must be competent draughtsmen with knowledge of the design of railway buildings and structures and of the layout of stations and goods yards. A knowledge of reinforced concrete design would be an advantage. Written applications (no interviews) stating full particulars of age, registration numbers, qualifications, experience and name and address of present employers, should be sent to the Secretary, Overseas Manpower Committee (Ref. 763), Ministry of Labour and National Service, Sardinia Street, Kingsway, London, W.C.2.

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terim dividend on the ordinary shares of 10 per cent., less tax, for the year absorbed £21,100, and a further dividend of 2½ per cent., less tax, for the year on the participating preference shares required £125, leaving £234,001 to be carried forward.

**S.R. Station Staffs' Victory Effort.**—Station staffs throughout the Southern Railway have been responsible for organising and running collections to coincide with local "Wings for Victory" weeks, and over £100,000 have been collected by this means. Contributions have come from both railwaymen and the travelling public.

**United of Havana Moratorium.**—The directors of the United Railways of the Havana & Regla Warehouses Limited announce that the stockholders' committee after full consideration of detailed information furnished by the company has extended for a further period of one year the operation of the scheme of arrangement dated June 27, 1930, as amended and extended in the years 1932, 1935, 1938, and 1941.

**British Timken Limited.**—Gross profit for the year 1942 amounted to £151,203 (£145,611). Depreciation takes £25,030 (£28,430) and interest £9,076 (£8,256), leaving a net profit before taxation of £117,097 (£108,925), to which has to be added £24,634 brought in. Provision for taxation is £63,000 (£60,000) and £20,000 is again transferred to contingencies reserve. The ordinary dividend is maintained at 15 per cent., less tax, and the amount to be carried forward is £18,731.

**Scammell Lorries Limited.**—After deducting factory expenses, the gross profit was £303,228. After deducting general expenses, directors' fees, depreciation on fixed assets, interest, and £175,500 for taxation, there was a net profit of £19,558, to which has to be added £15,037 brought forward, making £34,595. War damage insurance takes £1,250 and £12,000 is appropriated to general reserve. The dividend is at the rate of 7½ per cent., less tax, and £15,297 is carried forward.

**Swedish Railway Accidents.**—The number of persons killed in Sweden as a result of railway accidents in 1942 was 152, as compared with 92 in 1941, and 93 in 1938. Persons injured in railway accidents totalled 437 in 1942, 337 in 1941, and 294 in 1938. Of 85,000,000 passengers conveyed over the Swedish railway system in 1942, nine were killed through accidents not due to their fault, as against three so killed in 1941. Passengers injured in 1942 and 1941, as a result of railway accidents not caused by themselves, amounted to 54 and 21 respectively. Members of the railway personnel killed or injured in service totalled 83 in 1942, a notable drop from 290

in 1941. Accidents at level crossings increased to 146 in 1942 as compared with 128 in the previous year; 36 persons were killed and 41 injured.

**Agreed Charges.**—Applications for the approval of some 117 more agreed charges under the provisions of Section 37 of the Road & Rail Traffic Act, 1933, have been lodged with the Railway Rates Tribunal. Notices of objection must be filed with the Registrar of the Tribunal on or before July 16.

**Antofagasta (Chili) & Bolivia Railway Co. Ltd.**—The directors announce that, after meeting the full year's interest on the debenture stocks and making provision for income tax, etc., and contributions to the renewals accounts and the staff benevolent fund, the balance of net revenue for 1942 is approximately £272,000, which it is proposed to carry forward. This compares with £247,035 brought in from 1941.

**Public Transport Association.**—The Public Transport Association Incorporated, the new association in which the Omnibus Owners' Association and the Public Service Transport Association have been merged, was incorporated on June 22. This will be the largest passenger transport association in the country, representing the operators of some 39,000 road passenger vehicles (buses, trolleybuses, and tramcars), and ancillary interests. At the first meeting of the council Mr. T. E. Thomas, O.B.E., General Manager (Operation), London Passenger Transport Board, was elected Chairman, and Messrs. S. Kennedy, Director, Thomas Tilling Limited, and Mr. J. S. Wills, an Executive Director of the British Electric Traction Co. Ltd., were elected Vice-Chairmen. Mr. Eric D. Croft, M.A., B.Sc., previously Secretary of the Public Service Transport Association, was appointed Secretary. The registered offices of the association are at Brettenham House, Lancaster Place, Strand, London, W.C.2. Telephone: Temple Bar 4900. Telegrams: Passtrans, Rand, London.

**Turkish Railway Extension.**—Despite wartime difficulties, the Turkish Government is continuing the construction of various new railways, as recorded in the short article in our issue dated April 16 & 23, and in particular the line beyond Diarbekr, which is destined to reach the frontier of Iraq at a point beyond Cizre. According to the latest information, the railhead reached Kurtalan some time ago, but through traffic was not possible as the bridge across the River Batman (a tributary of the River Tigris) had not been completed. This bridge, which is more than a quarter of a mile long, has now been completed, and, according to a message from Istanbul dated June 28, was opened last week-end in the presence of the Turkish Ministers of Public

Works and of National Defence, and the Deputy Chief of the General Staff. Regular traffic is now stated to have been begun up to Batman Station.

**Lancashire & Yorkshire Wagon Co. Ltd.**—For the year ended March 31, the profit, after making provision for interest on loans, and bank overdraft, depreciation, directors' fees, income tax and E.P.T., including provision for war damage insurance, was £12,594, to which is to be added £30,272 brought forward, leaving £42,866. The dividend is 16s. a share (8 per cent.) plus a bonus of 4s. a share (2 per cent.), both less tax, leaving £32,866 to be carried forward.

**Entre Rios Railways Co. Ltd.**—The directors have decided to pay on July 16 a further six months' arrears of interest, for the period ended March 31, 1941, on the 4 per cent. debenture stock, together with 5 per cent. per annum interest on the arrears provided for under the moratorium scheme. The total payment amounts to £24s.7d. per cent. Distributions of interest on this stock were made on May 1 in respect of the six months ended September 30, 1940, and on January 15 in respect of the half year to March 31, 1940.

**Belgian National Railways.**—According to the German News Agency, the Belgian National Railways report for 1942 shows a deficit of 925·83 million Belgian francs. To December 31, 1941, the deficit from earlier years amounted to 2,016·7 million francs. In the report it is stated that, to the end of 1942 expenses, apart from repairs to the rail system, amounted to 2,489 million francs. Increases in expenses have been partly offset by the 20 per cent. increase in passenger tariffs, which came into force on June 1, 1942.

**Ruston & Hornsby Limited.**—Accounts for the year to March 31, 1943, are given in a new form and the figures for the previous year have been adjusted for comparative purposes. After providing for E.P.T. and debenture charges the profits for the year under review amounted to £294,996 (£273,943) and £59,273 (£67,126) was brought in. Provision for income tax was £139,656 (£146,346), and £25,000 is again reserved for contingencies. Appropriations are also made of £30,000 (£21,825) to general reserve and of £10,000 (nil) to pension reserve. Dividend on the ordinary stock for the year is 12½ per cent., less tax (same), and £60,988 is carried forward.

## Contracts and Tenders

The Bengal-Nagpur Railway Co. Ltd. has placed a contract with Babcock & Wilcox Limited for steam piping.



# Railway Stock Market

Firmness has ruled in most sections of the Stock Exchange, where sentiment was assisted by the confidence indicated by the small amount of selling in evidence. On the other hand, the general volume of business was moderate, and demand showed no appreciable improvement. British Funds remained firm, and the undertone in home railway prior charges was better, although demand was not sufficient to cause recent declines in the latter to be regained. Junior stocks were inclined to improve, but movements were again fractional, and influenced mainly by the day-to-day trends in markets generally. It is not improbable that, although the forthcoming interim dividends may be the same as a year ago, they may bring about a better trend in the junior stocks by drawing attention to the very generous yields on the latter. It is true that equity securities of all classes are inclined to be valued not so much on the immediate dividend yield as on prevailing views of prospects as regards earnings and dividends after the war. Nevertheless, it has to be admitted that at this stage there is still very little on which to base estimates of this kind, particularly as the post-war outlook of many industries will turn in a large measure on the extent it is considered necessary to maintain Government controls and regulations. As time goes on it may very well become more generally realised that the railways will be in a relatively favourable

position in the immediate post-war period, because dividends around current rates can be considered as virtually guaranteed by the Government under the existing financial agreement. As pointed out in these notes, the latter may very well remain in force until there is a final decision on the post-war organisation of transport. Among foreign railway securities, the main feature was the partial rally in San Paulo ordinary after the news that the increase in tariffs which the company asked for in December last had been granted; the annual meeting was awaited with interest for any references to the outlook in relation to the high costs of materials and wages. Antofagasta issues were inclined to ease on the preliminary statement for the past year's working. There was a reactionary tendency in Argentine railway securities; sentiment has come more under the influence of the disposition to await further indications of the attitude of the new Argentine Government.

After an earlier decline, Great Western ordinary rallied to 62, which compares with 61½ a week ago; the 5 per cent. preference was half-a-point lower at 113, and the 4 per cent. debentures 108½ xd. Better demand developed for L.M.S.R. ordinary in which there was some speculative activity on the possibility that an interim may be paid, and the price improved from 32½ to 32½. Nevertheless, the prevailing view is that the dividend

will again be left entirely until results for the whole year are known. L.M.S.R. senior preference was fractionally lower at 76, but the 1923 preference at 62½ was unchanged on balance, and the guaranteed stock again 100½. There was a revival of some speculative activity in L.N.E.R. preferred and deferred stocks which were slightly better on balance. This railway's second preference stock was favoured and improved from 34½ to 34½; the view is current in some quarters that in this case there may be the possibility of a fractionally better dividend for the present year. L.N.E.R. first preference was 62, compared with 62½ a week ago; the first guaranteed remained at 97½. Among Southern issues, the preferred received attention on recognition of the good yield and investment merits, to which reference was made last week. The latter stock has improved on balance from 74½ to 75 at the time of writing, and the deferred was slightly better at 24½. London Transport "C" was 61½, compared with 61½ a week ago.

Among foreign railway securities San Paulo was 61 "ex" the dividend, Antofagasta ordinary 14, and United of Havana debentures 38½. Leopoldina debentures eased to 55. Among Argentine stocks, B.A. Gt. Southern ordinary moved back to 12, and the 4 per cent. debentures to 59. Elsewhere, Canadian Pacific lost part of an earlier improvement.

## Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ending	Traffic for week		No. of Weeks	Aggregate traffic to date			Shares or stock	Prices					
			Total this year	Inc. or dec. compared with 1941/2		Totals		Increase or decrease		Highest 1942	Lowest 1942	June 25 1943	Yield % (See Note)		
						1942/3	1941/2								
South & Central America															
Antofagasta (Chili) & Bolivia	834	20.6.43	£ 29,060	+	£ 5,640	25	£ 675,340	£ 528,170	+	£ 147,170	Ord. Stk.	14	7½	14	Nil
Argentine North Eastern	753	19.6.43	14,982	+	828	51	638,130	560,268	+	77,862	"	6½	3	6½	Nil
Bolivar	174	May, 1943	5,665	+	1,060	20	27,546	23,063	+	4,483	6 p.c. Deb.	19½	10	20½	Nil
Brazil	—	—	—	—	—	—	—	—	—	—	Bonds	20½	9	22½	Nil
Buenos Ayres & Pacific	2,807	19.6.43	82,500	—	3,600	51	5,047,380	4,486,860	+	560,520	Ord. Stk.	7½	4	6½	Nil
Buenos Ayres Great Southern	5,080	19.6.43	134,940	+	14,520	51	8,140,440	7,432,680	+	707,760	Ord. Stk.	12½	7½	12½	Nil
Buenos Ayres Western	1,930	19.6.43	48,360	—	5,100	51	2,742,660	2,648,520	+	94,140	"	12½	6	12	Nil
Central Argentine	3,700	19.6.43	110,607	—	4,122	51	6,649,473	5,393,637	+	1,255,836	"	9½	4½	9	Nil
Do.	—	—	—	—	—	—	—	—	—	—	Dfd.	3½	2½	4	Nil
Cent. Uruguay of M. Video	972	19.6.43	33,462	+	10,000	51	1,527,786	1,315,884	+	211,902	Ord. Stk.	8	4	6½	Nil
Costa Rica	262	May, 1943	22,861	+	7,210	41	173,827	228,220	—	54,393	Ord. Stk.	16½	11	14½	Nil
Dorada	70	19.6.43	21,939	+	6,057	20	98,259	63,546	+	34,713	1 Mt. Db.	90½	89	93½	Nil
Entre Rios	808	19.6.43	19,170	+	1,512	51	906,900	796,668	+	110,232	Ord. Stk.	33	4½	7	Nil
Great Western of Brazil	1,030	19.6.43	16,000	—	7,100	24	383,400	247,500	+	135,800	Ord. Sh.	9½	9½	55½	Nil
International of C. Amer.	794	May, 1943	\$646,832	+	\$85,592	20	\$3,312,644	\$3,159,152	+	\$153,492	"	—	—	—	Nil
Interoceanic of Mexico	—	—	—	—	—	—	—	—	—	—	1st Pref.	1½	5/3	2	Nil
La Guaira & Caracas	22½	19.6.43	9,520	+	3,555	22	45,395	32,135	+	13,260	5 p.c. Deb.	11½	5	83½	Nil
Leopoldina	1,918	19.6.43	34,239	+	3,724	24	793,608	724,305	+	69,303	Ord. Stk.	6½	5½	6½	Nil
Mexican	483	14.6.43	ps. 394,400	+	ps. 104,700	22	ps. 8,663,600	ps. 8,044,900	+	ps. 618,700	Ord. Stk.	1	—	1½	Nil
Midland Uruguay	319	Apr., 1943	17,124	+	2,741	40	152,738	137,510	+	15,228	"	—	—	—	Nil
Nitrate	382	15.6.43	4,601	—	3,257	21	66,640	71,624	—	4,984	Ord. Sh.	77½	3½	80½	Nil
Paraguay Central	274	19.6.43	\$2,726,000	+	\$553,000	51	\$209,797,000	\$181,211,000	+	\$28,586,000	Pr. Li. Stk.	53	40	52½	Nil
Peruvian Corporation	1,059	May, 1943	92,939	+	11,934	44	940,331	833,448	+	106,883	Pref.	19½	5½	15½	Nil
Salvador	100	Mar., 1943	c 140,000	+	c 14,000	38	c 912,000	c 782,172	+	c 29,828	Ord. Stk.	59	41	63½	3½
San Paulo	153½	13.6.43	45,929	+	5,269	24	903,103	850,902	+	52,201	Ord. Stk.	41½	23½	32½	6½
Taltal	160	May, 1943	2,390	—	3,100	25	46,206	49,710	—	3,504	Ord. Sh.	8½	2½	6½	Nil
United of Havana	1,301	19.6.43	50,489	—	7,976	51	2,619,943	1,646,194	+	973,749	Ord. Stk.	—	—	—	Nil
Uruguay Northern	73	Apr., 1943	1,425	+	431	43	14,074	12,084	+	1,990	"	—	—	—	Nil
Canada															
Canadian Pacific	17,034	21.6.43	1,120,400	+	156,800	24	27,592,400	222,791,400	+	2,801,000	Ord. Stk.	16½	9½	10½	Nil
India															
Barsi Light	202	May, 1943	19,193	+	5,355	8	45,240	26,693	+	18,547	—	—	—	—	—
Bengal & North Western	2,093	Nov., 1942	264,975	—	33,087	8	449,400	561,082	—	111,682	—	—	—	—	—
Bengal-Nagpur	3,267	Feb., 1943	932,775	+	84,975	46	10,031,400	9,111,000	+	920,400	Ord. Stk.	102½	88	102½	102½
Madras & Southern Mahratta	2,939	10.4.43	270,900	+	48,352	1	270,900	222,548	+	48,352	"	105½	87	107½	107½
Rohilkund & Kumaon	571	Nov., 1942	555,750	—	5,072	8	115,950	99,909	+	16,041	"	103½	88½	102½	102½
South Indian	2,402	10.4.43	189,097	+	10,085	1	189,097	179,012	+	10,085	"	—	—	—	—
Various															
Egyptian Delta	607	10.5.43	14,585	+	3,993	5	56,347	42,763	+	13,584	Prf. Sh.	5½	1½	4	Nil
Manila	—	—	—	—	—	—	—	—	—	—	B. Deb.	44	35	36	9½
Midland of W. Australia	277	Apr., 1943	34,426	+	8,799	40	320,996	203,110	+	17,886	Inc. Deb.	95	90	98	4½
Nigerian	1,900	3.1.43	51,142	+	29,172	51	3,606,468	3,266,869	+	339,599	—	—	—	—	—
South Africa	13,291	8.5.43	885,689	+	140,973	5	4,608,221	4,180,541	+	427,680	—	—	—	—	—
Victoria	4,774	Jan., 1943	1,480,058	+	169,521	—	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ½ %

† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffics are given in sterling calculated @ 16½ pesos to the £

‡ ex dividend